

# COMPUTER & VIDEO GAMES

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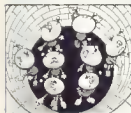
Earth is being threatened by aliens from a sinister galaxy who want to colonise our planet and enslave all the inhabitants. Only space commanders with a Spectrum can save our universe!

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# SILVERSOFT





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## QUICKDRAW TO MUSIC

Dear Sir,  
Quickdraw in the June 1983 issue of C&VG was excellent. I typed it into my Apple computer and was immediately impressed by the graphics. But the Death March tune was awful! I have written a new Death March routine which other readers might like to try.

Change line 98 to read as follows: 98 DATA 245, 215, 200, 245, 205, 150, 245, 173, 50, 245, 205, 190, 230, 203, 100, 235, 175, 90, 235, 190, 150, 245, 185, 90, 245, 185, 150, 247, 190, 90, 245, 235, 500.

Mark Heather,  
Sevens Oaks,  
Kent.

## OVER THE STICKS!

Dear Sir,  
I own a 16k ZX81 and have a motherboard and wish to attain a 1/0 port so that I can use my Atari joysticks. So please could you tell me if there is any such 1/0 port for Atari joysticks and who makes them.

Dean Clark,  
Barking,  
Essex.

Editor's reply: There are three main joystick controllers for the Sinclair machines. They are made by Kempston, Fuller and AGF. Kempston and AGF modules plug directly into the rear of the ZX computer. The Fuller system is part of its "box". These will all be reviewed in the near future.

Keith Archer, of Fuller, describes what happens when a joystick is used: The Fuller box has a joystick controller port or socket which works in a similar way to Kempston's.

Our joystick is sensed by the Spectrum using the 'IN'

command. The eight data bits of port 127 are usually high ie, Port 127 contains decimal 255 or binary 11111111. As the joystick is moved around or the fire button pressed, certain bits of the eight-bit, byte will be pulled low to logic 0.

Therefore the IN 127 command would return different decimal values according to which direction the joystick is being pushed.

7 6 5 4 3 2 1 0  
BIT NO

PORT 127  
1 1 1 1 1 1 1 1  
NORMALLY HIGH — LOGIC 1

F R L D U  
I E O F  
CONTROL OF JOYSTICK

R G F W  
E X T N

As the joystick is pushed up, bit # is pulled low so the binary value becomes 11111110 — decimal 254. When the fire key is pressed bit 7 goes low giving 01111111 — decimal 127.

Any combination of direction or fire key, ie, diagonally up and left as



well as fire would give three bits low ie. 01111010 — decimal 122

So, in a basic program, a statement of the form: IF INKEYS = "S" THEN LET X=X+1 for action to the left could be replaced by IF IN 127 = BIN 11111011 THEN LET X=X+1 or IF IN 127 = 251 THEN LET X=X+1

Replacing the appropriate INKEYS statement with the right IN 127 command, a

game could be controlled by joysticks instead of cursor keys, or any other combination of keys.

One common question asked is "which keys does your joystick work on?" The answer is none.

Buying a joystick does not mean that you can control all your games without changes. I have found that people think that if they have a game which uses the cursor control keys — S,6,7,8, with 0 to fire or similar, and they find another game with the same keys to control the game but it also works on a joystick, then they assume that all games using these keys will be OK using a joystick and controller.

They don't realise that the game needs to be changed to suit the joystick being used.

## THE LONG LOST BUG!

Dear Sir,

A word about the bugs. What has happened to Lost Memory (see May 82, issue No. 7)? I suppose he's forgotten which micro he was in and has just wandered off. By the way, who is the person behind the marvellous Bugs strips?

As an ardent fan of the Bugs (when in magazines and not in ROM's or in programs) I thought of a basic story line you might want to use: The micro has a synthesiser, and when it plays music (or "Pings", "Zaps" and "Brrr's" as the case may be) it's all thanks to the Bug's band. The micro-owner, however, buys a super-addictive 'shoot-em-down' game with "Zaps", "Bongs", "Wagawooawag-awoo's" and everything else you can think of.

So as the micro-owner plays this game for hours on end the bugs soon collapse exhausted and all that's left of the game in the way of sound

is "Blip!", "Crash!", "Aaargh!", "Omph!", "Phum!"  
Jeremy Youngman,  
Old Catton,  
Norwich.

Editors reply: Elphinstone Jones is the man behind the Bugs. Jeremy, and he is always looking for new ideas for scripts — otherwise he has to rely on the feeble efforts of yours truly. So we'll consider your idea and if anyone else out there has a good idea for a Bugs' script please put it down on paper and write in.

## A WOULD-BE SKY PILOT

Dear Sir,

I own a 32k Pet and as yet I have not found one flight simulator for it.

Please could you ask your readers if they know of any company which supplies this game?

P.S. What do you get if you cross a nuclear reactor with a computer? Fission Chips!

Barry Jones,  
Knebworth,  
Herts.

## CONVERTING COMMANDS

Dear Sir,

At school we learn how to write programs and use a Pet computer, but I can only afford an ZX81 plus 16k RAM. Could you tell me if there is a piece of hardware or cassette to convert the INPUT command to READ/DATA? Dean Moore,  
Darwen,  
Lancs.

Editor's reply: Most ZX81 programs use string arrays to overcome the lack of READ/DATA, RESTORE. They also use LET too.

You will have to do this conversion to get any software using these constructions to run on the ZX81. (Since the string containing the information.)

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# MAILBAG



## LONG LIVE THE PET

Dear Sir,  
Is my Pet dead? I was introduced to computers about a year ago, and was fortunate to obtain a small keyboard 2001/8K Pet at a reasonable price, on which to start. Up to that time there was a wealth of useful programs for the Pet in the magazines on the market.

With increased experience I now need more memory and would like to upgrade the ROM's. Correspondence with Commodore for help only produced an unsatisfactory reply after several letters and months, and the Commodore agents I contacted only wanted to upgrade as part of an expensive service, or sell me a Vic.

The Pet Users Club provided the most beneficial advice and consequently I have now installed one of Audio Computers' excellent 32k expansion RAM's but the ROM problem still remains.

The point of the letter is to ask in the light of CBM's general unhelpfulness, if the Pet has finally reached the end of its life.

It is also interesting to note that most magazines, including yours, now have very little of any consequence to offer for the Pet, we seem inundated with offerings for the Vic and ZX811.

In conclusion, I shall like to thank you for refreshing approach to computer programming in your articles, mainly 'Practical Programming', and 'Graphics'.  
J. Wynt,  
March,

**Editor's reply:** The Pet, in its original form is most certainly 'dead' and has been for some years. It has, however, produced a number of offspring — the Vic, Commodore 64 etc. The model you have is difficult to upgrade to Basic 2.0 or Basic 4.0 and further discussion with the Pet Users Club should point you in the direction of other members who have overcome the problem.

As for the lack of

software... the Pet was really developed as an engineering/commercial/educational machine and so few games have recently been published as its derivatives do so much better. There is nothing to stop you converting Vic games into Pet ones.

## CRACKING THE CODE

Dear Sir,  
I own a ZX Spectrum and I am having a problem with saving writing and loading. I think it would be a good idea if readers who can successfully save, verify and load volumes could tell your readers the volume settings they use on their cassette recorders when carrying out these functions. It would also help if they tell us the make of recorder they use.

My own recorder is a Waltham W104M1A. Nick Morgan, Wolverhampton, West Midlands.  
**Editor's reply:** The Waltham cassette recorder is a fairly cheap model and is not really recommended for the Spectrum. Even similar models give different results — so your idea is not really on. We suggest that anybody buying a cassette recorder for any computer tries it out before paying for it!

## KONG'S ODD BEHAVIOUR

Dear Sir,  
I am writing on behalf of all the Donkey Kong players in Eastbourne, we have about four or five Donkey Kong machines in various arcades and pubs in Eastbourne, but every one appears to be faulty.

My present high score is 428,300 which I achieved several months ago and which you printed in your magazine. I achieved this score and had two lives left when the machine went faulty. Since then I have not found a single machine in or outside Eastbourne which will go above that score.

I know that some machines in the USA go up to 800,000 but they have a different type of machine.

I have also found other variations on the game in France and Spain in which extra gaps have been left in the beams so that Mario has to jump holes as well as barrels. Also in some versions (on the pie screen) Kong rolls around on skates and, on the plug screen, if you touch Kong you die. On others you can run behind Kong or in front.

On all of the different machines I have played on they all seem to go wrong as



I have explained. This is a great pity as I can now reach 400,000 with only one life then the machine goes wrong and I lose the other three lives. I am sure that if I played on a working machine I could attain a much higher score. Have any of your other readers experienced this?  
J. Bull,  
Eastbourne,  
East Sussex.

## PROCESSING VIDEO GAMES

Dear Sir,  
Could you please advise me whether there are any video game programmes that are compatible to use with Spellbinder word processor.  
Miss J. E. Ogilvie,  
Ipswich,  
Suffolk.

**Editor's reply:** Most word processors are not able to handle games. However, yours seems to be able to use Basic. What any game needs though, are decent graphics so it would be highly unlikely that any games are available.

## DEFENDING THE ATARI

Dear Sir,  
I felt I must write and voice my disagreement with a number of points raised in your May issue. First, I disagree that the standard of Atari games published is particularly high.

Secondly, Mr D. A. Johnson, I believe from an interested friend that T.I. sprites are only available if the extended Basic cartridge is bought.

Lastly, your Atari Defender reviewer cannot be an Atari owner. Put Preppie, Protector, Galactic Chase and 250 other games up against Acornsoft — the only real quality Beeb games — and Atari would win every time.  
Marc Freebury,  
Reading,  
Berks.

## NEW IDEAS, NEW GAMES

Dear Sir,  
I have an idea for what I believe to be an original video game for home or maybe arcade use. However, my knowledge of programming is insufficient to enable me to produce more than an outline. Could you please tell me:

Which manufacturers might be interested and how might they be best approached? What detail would be required? How can I best protect my interests?

A. F. Hackett  
Cramlington,  
Northumberland.

**Editor's reply:** The best way to locate a manufacturer/distributor of games is to look through, say, C&VG and find who seems to be marketing the best range for your machine. Just write a letter and say what you have. Do not send anything.

Outline the game and ask for details of any legal agreements they may use. Any reputable company has these things sewn up.

Your interests could best be looked after by going to a lawyer, and let him have a look through any agreement. Say 10% of any sales, or some money up front and a lower royalty.

## YOUR NEW PROGRAM COULD WIN YOU £5,000!

Put a special effort into your next program — it could be worth £5,000.

There's £5,000 in good honest cash going to the winner of our August competition to find Britain's brightest programming talents.

The prize comes from Calisto Software of Birmingham which is keen to expand the number of machines it covers and use home-grown programmers rather than ship in games from the US.

Calisto's Mike Woodroffe believes it takes three months to write a good games program and that's what you've got. If you're starting from scratch, your program must be finished by October 16th.

If you are going to polish up one of your previous efforts, then why not send it quickly and get started on another program. You can enter as many programs as you like as long as each comes with an entry form cut from the magazine — and we'll have more forms in our September and October issues.

But there's a chance for everyone to be a winner in this competition as Calisto will be giving out software contracts to the designers of games they want to market.

So even if you don't end up £5,000 richer straight away, you could still

find the royalties rolling in if you become part of Calisto's team of software writers.

You can enter on any popular microcomputer and all cassettes will be tested by Calisto's team of judges. If your offering is picked as the winner, you'll be presented with a cheque for £5,000 at the brand new home computing show Bram-wave '83 in the NEC Birmingham in the first week of November.

To enter, simply fill in the form below and attach it to a cassette of the game. Make sure you fill in all the details about yourself and your game on the form.

If the game instructions are not included on the cassette itself, then add them on a separate piece of paper but please ensure that your name and address are included on every part of your entry.

Perhaps you are a keen programmer who has not yet turned his hand to games, then you can enter any kind of program and Calisto will test it out.

The winner will be the reader who comes up with the best commercial program, and Calisto will also pay royalties on all copies sold. Remember all published entries will be given a software contract, possibly worth a lot of money.

The judging time is limited so get your entry in as quickly as possible but be sure that your program is properly polished first, to give yourself a good chance of coming away £5,000 richer.

The entries must be sent to: £5,000 Program, Calisto Software, 119 John Bright Street, Birmingham B1 1BE.

## VOTE FOR THE GOLD STICKS

Do you have a favourite game that is worth its weight in gold? Or a software company you would like to reward for its high standards and prompt service?

Here at C&VG, we decided that the best of British software houses deserved the chance to win some recognition after a hard and competitive year which has seen games programming standards rising fast.

We are sponsoring five Golden Joystick Awards which we hope will become the UK Oscars of games programming.

This is your chance to nominate a company which has given good service or earn recognition for the game which has given the most pleasure in the last nine months (since November 1982).

Our five categories are:

- **Best Arcade-style Game**, which goes to the cassette or cartridge which proves itself the most addictive and thrilling.

- **Best Strategy Game**, is the title bestowed on the finest cassette or cartridge to test the mind rather than the trigger finger — like a favourite adventure.

- **Best Original Game Idea** goes to a company which has come up with a game of a completely new type, unlike any board, arcade or computer game seen before.

- **Software House of the Year** goes to the company which has earned the best reputation for quality games, good service and entertaining advertising.

Please enter this program in the £5,000 program competition

Program name: .....

Machine: ..... Model: .....

Number of K needed to run it: ..... K

Other equipment needed to run it: .....

Author's name: .....

Address: .....

Telephone No: .....

All entries will be the property of Calisto Software and the entrants will assign all rights, patents and privilege of their game to Calisto.

No employees of Computer & Video Games, Calisto, or their relatives, will be eligible to enter the competition.

All entries must be sent in with an original coupon from Computer & Video Games — NOT A COPY.

The judge's decision is final and no correspondence can be entered into.

You can enter any number of programs as long as each is sent in with a form from Computer & Video Games. Winners will be notified before October 30th.

# COMpetition COMpetition COMpetition CO

● Game of the Year is the most coveted Golden Joystick of all, awarded to the game which most impresses the judges in 83.

This game must first have won one of the previous games categories and where that has happened the second-place cassette is promoted to take that title.

Initially we are leaving the judging up to you and want you to tell us your nominations in any or all of the categories.

Just pick out your favourite games and fill in the form below.

The title Software House of the Year is open to distributors of overseas software, but for the rest, we are looking for British-based games programmers.

Cut out the form below and make your vote for gaming quality count. Send it to:

The Golden Joysticks, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

| NAME   | CHARACTER TYPE | SCORE | WORLD | FLEETS | SHIPS | ARTIFACTS | BONUS |
|--------|----------------|-------|-------|--------|-------|-----------|-------|
| ARKRAI | COLLECTOR      | 2480  | 16    | 11     | 124   | 18        | 0     |
| CAPPEL | EMPIRE BUILDER | 1814  | 18    | 13     | 73    | 7         | 0     |
| CATRIQ | COLLECTOR      | 1740  | 16    | 18     | 129   | 11        | 0     |
| AUSTIN | PIRATE         | 1582  | 9     | 15     | 31    | 2         | 0     |
| ITEMIZ | COLLECTOR      | 1500  | 16    | 14     | 02    | 8         | 0     |
| THEOCK | APOSTLE        | 1330  | 23    | 18     | 137   | 6         | 0     |
| ARACHN | EMPIRE-BUILDER | 1144  | 12    | 16     | 93    | 1         | 0     |
| BUSACT | PIRATE         | 1142  | 14    | 9      | 55    | 7         | 0     |
| SICAIR | APOSTLE        | 888   | 12    | 14     | 108   | 8         | 0     |
| COTELL | APOSTLE        | 812   | 11    | 12     | 33    | 2         | 0     |
| BINGAR | BERSERKER      | 488   | 20    | 14     | 60    | 9         | 0     |
| GZINTI | BERSERKER      | 262   | 12    | 11     | 88    | 8         | 0     |
| THEOCK | MERCHANT       | 208   | 11    | 15     | 104   | 8         | 0     |
| KRIFF  | MERCHANT       | 180   | 13    | 9      | 55    | 6         | 0     |
| MEGALA | BERSERKER      | 111   | 13    | 14     | 80    | 2         | 0     |

VICTORY POINT LIMIT = 2 400 (MAX 10,000)

## DID YOU TANGLE WITH THE STARWEB?—THEN READ ON

Our Starweb game is now over — but we hope that all of our readers who took part enjoyed the experience. Here's a message from one of the people who joined in, Mark Woolrich, and a rundown of the final positions.

"Overall Starweb has been an excellent game, becoming at times a time consuming hobby whilst still retaining the ability to be played quickly and with little thought should you find yourself busy with other things.

One of Starweb's best features is the interaction with "red" players, (rather than semi-predictable "computer" players), in whom you could find all the better and worse traits of human nature and who give the game a complexity impossible to get from the computer alone.

However, the game was not without its frustrations, the main one being the fate of all things of a tactical nature that are too easily allowed to fall into the hands of the Post Office.

One thing though, that is a fault of the game is the obvious imbalance between character types. You can see at a glance from the score sheet the types that the game favours.

Us poor Berserkers must be the result of a Xenophobic game designer, and as for the Merchants, their wealth presumably relies upon trust and goodwill both of which are notably lacking in a game where there's only one winner. In the Starweb rule book there is a hint that a handicapping system might be introduced, but when?

Finally, although I'm full of ideas on how to conduct my next game of Starweb as a result of my experience, I'm afraid the cost is too much at £30 or more per game.

However, I'd love to play Starweb again and again until I found a way for the poor underdog Berserker to come out on top. And after that I'd have a go at the Merchant type. Little's no fun without a struggle."

Mark Woolrich,  
Formerly GZINTI Fleet Controller

Please accept the following nominations for the Golden Joystick Awards.

(BLOCK CAPITALS PLEASE)

1) Best Arcade Type Game:

By (Software house):

2) Best Strategy Game:

By:

3) Best Original Game:

By:

4) Software House of the Year:

5) Game of the Year:

By:

Name:

Address:

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# SPECTRUM

## NEWS

from SPECTRUM

### IKON

#### HOBBIT FLOPPY TAPE DRIVE for the BBC Micro

Because there is a shortage of BBC Disk Drive up-grade kits we have been able to secure a supply of IKON FLOPPY TAPE DRIVES for the BBC micro, which is an ideal alternative - see our ad for details.

### ZX SPECTRUM

We have a large range of add-on goodies for the ZX SPECTRUM - see our ad you'll be amazed!

### SOFTWARE

See our super range of SOFTWARE from top American & British companies

### NEW SPECTRUM MEMBERS

Check our address page! There are many new SPECTRUM dealers throughout the UK so there's a good chance there'll be a SPECTRUM centre near you.

### PRESTEL

See PRESTEL Page 600181 for up to date information from SPECTRUM.

### AFTER SALES CARE

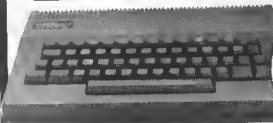
SPECTRUM service centres will ensure that should your machine go down we will get it running again as quickly as possible. We also offer extended warranties at reasonable prices too! ask your SPECTRUM HOME COMPUTER CENTRE for full details.

### COMPUTER DESKTOP

The SPECTRUM desktop has a virtually silent, 11 year free and easy 4 line to open the waiting list, please write to MINE STERN Spectrum (D.K.) Ltd, Barnetfield, Welwyn Garden City, Herts.

Just arriving - the new

## LYNX 96K



More power!  
More features!

Now from SPECTRUM the new LYNX 96K offering more workspace for ambitious programs. The most important feature of the 96K machine is its additional memory. In full high resolution colour, it provides 37.5K of RAM directly accessible in basic - with up to 24K more available to programs using machine code. The extra memory of the 96K machine helps you make the most of the outstanding features it shares with the 48K LYNX: remarkably high resolution graphics and the highly praised LYNX BASIC with its built-in machine-code monitor. Additional ROM features on the LYNX 96K include drivers for both parallel and serial printers, and a range of preformatted sound effects. Ask to see the super new LYNX 96K at SPECTRUM - NOW!

**SPECTRUM PRICE**

**£299.00**

### LYNX 48K Model - SPECTRUM PRICE £225

For the 48K LYNX owners who're ready to take the next step, the 48K machine can be upgraded to full 96K specification for just £89.95

### Commodore

## VIC-20 Package Deal



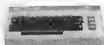
**HURRY!**  
Last few  
only left

**Sensational  
Value ONLY**

**£139.99**

A complete Home Computer system including the VIC 20 Computer, a Cassette Unit, Introduction to BASIC part 1 - a simple explanation of computer programming. A set of four computer programs - Blitz, Type-A-Tune, Race & Hoppit. A fantastic deal! and great value-for-money check it out at your local SPECTRUM dealer NOW! But HURRY! this is a limited offer: only white stocks left!

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Powerful 64K RAM  
40-colour displays to monitor TV. High resolution graphics and 3-dimensional effect - capability, music synthesiser Z80 additional processor option

**Spectrum Price**

**£345.00**

Package Deal offer does not apply to Commodore 64 Model

**TURN THE PAGE FOR MORE SUPER OFFERS FROM SPECTRUM**

# SPECTRUM

## BBC Model 'B' MICRO



Yes this top selling Micro system is now available from your local SPECTRUM dealer. The BBC Model B offering 32K RAM plus a full back-up of peripherals & software tool. It's an infinitely expandable machine ideal for the home or business and is already widely used for educational purposes in schools, so the chances are your children may already be well familiar with its operation, which must make it the ideal choice for the home too!

Now available  
**IKON FLOPPY TAPE DRIVE**  
for the BBC The Ideal Storage Unit!  
Spectrum Price **£155.25**

**QUICK SHOT JOYSTICK**  
Especially for the BBC  
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## SHARP MZ-80A



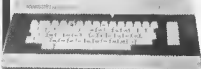
Desk top gem! The all-in-one SHARP MZ 80A. Ready to hit the moment you get it home. Built-in keyboard, CRT, 8" display and cassette data storage with 80K RAM. The BASIC with extra useful additions offers quite a powerful menu for the home or business. 4K Byte ROM 48K Byte RAM, 2K Byte Video RAM. ASCI 1 profile keyboard, numeric pad. 2 Page Video RAM allows screen to be scrolled up or down. CP/M available.

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of software  
with extra MZ80A  
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Twin Disk Unit (only)  
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Cable for F.D. Drive  
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MZ-800 & MZ-80K  
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4 programs with every ORIC-1 48K purchased.

- Multigames
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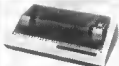
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High Resolution  
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47 970 Bytes  
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GP-100A **£229.94**  
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Model TD-1A **£431.25**  
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Model 80 **£259.90**  
Model 82A **£455.40**  
Model 92P **£585.35**

All prices include VAT

## MONITORS



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3199NB  
Colour Monitor  
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### THE PLUG

Ever had your micro crash on you when you were in the middle of a complex program because some other electrical appliance was switched on and caused a power fluctuation? THE PLUG is designed especially to overcome this problem.

only **£14.95**

**ALL PRICES INCLUDE VAT**

Not all goods supply delivery nationwide - please check before making a purchase. Prices correct at time of going to press. £ = G.S.



# SPECTRUM

## SINCLAIR ZX SPECTRUM



This top selling micro is now available from Spectrum in both 16K and 48K RAM.

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Spectrum Computer Centres have no connection whatsoever with the ZX Spectrum Computer manufactured by Sinclair Research Ltd.

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Control sound of your  
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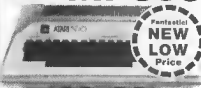
- Pair of Joysticks ■ Begin-  
ners BASIC Tutor program
- Connect Four program

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Now this proven and tested machine has been upgraded to a massive  
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Is expand your micro as and when you want to suit your needs. So if you're  
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# NEW PRODUCTS NEW PRODUCTS NEW PRODUCT GAMES NEWS

## DIAMONDS ARE MARIO'S DOWNFALL!

### KONG 64

Diamonds are a girl's best friend — until they stop her being rescued from the clutches of a well-known ape.

In *Krazy Kong 64*, Mad Mario is once again faced with the task of rescuing his sterile girlfriend. But this time, he not only has to dodge the bouncing barrels, he must also gather up her scattered diamonds.

Should he miss a diamond, Mario has the risky job of backtracking his steps to collect it, at the same time dodging the ever-present barrels, before he can move on to the next level. The remaining levels offer further challenges with various objects to be collected.

*Krazy Kong 64* is a one-player game and you'll need a joystick. It is available from Hampshire-based Inceptor Micros and all leading retailers at £7.00.

Also available for the Commodore 64 from Inceptor Micros this month, are *Star Trek*, an interstellar adventure game, *Spartan*, based on the original arcade game *Pacman* and *Scramble*, all retailing at £7.00.

## SIXTEEN SCREENS OF DANGER!

### MANIC MINER

*Manic Miner* is a sixteen screen climbing game for the Sinclair Spectrum due out shortly from Bug Byte software of Liverpool.

Based on the hit Amstrad game *Miner 2049er* the idea of the game is to get your little character up to the final screen — climbing ladders — hopping on lifts and jumping onto platforms.

Various obstacles will have to be overcome if you are to successfully get your little man to the top.

*Manic Miner* will run on the 16 or 48k Spectrum and will be in the shops in July at £5.95.

The Liverpool-based firm have recently been celebrating their



move to new premises at Cannon Place beside the Mersey.

The new offices are a games programmers' dream with an enormous room for computers — programmers and the various tools of the software writers trade.

Above the programming department and offices is a computer tape duplicating plant which churns out all Bug Byte games.

## ENJOY THE JET SET LIFE STYLE

### DOMINIC

Fancy living the high life. Swimming around plush casinos in expensive clothing throwing away tens of thousands of pounds on a reckless gambling spree.

If the answer is yes, but Daddy doesn't own an oil well, then you may still be able to get a taste of the jet set with this latest game.

You are Dominic — a wheeler dealer tycoon who prefers grinding his opponents into bankruptcy on the roulette table in his spare time to putting his feet up in his luxury home.

Feel you can take on his personality for an afternoon on your Atan 400/800 — if so you'll need the latest cartridge from Bomb.

Two other titles in this new range of games from the former video games manufacturers are *Funny Tiddie* and *Indianapolis*. The *Tiddie* game challenges you to save poor little lost Bobo from being swallowed by the big fish in the tank.

*Indianapolis* is a car racing game recapturing the thrills and spills of the race track.

The games are imported into the UK by Pencilcom of Grimsby and sell for around the £15 mark.

## ARCADE ALIENS INVADE!

### GOLF

That popular *Belly Midway* arcade game *Gorf* has now been licensed by Commodore and converted to cartridge for the Vic-20.

Four levels of attack are mounted on your laser base as you struggle to repel the Gorfian Empire's bid to take over Earth.

The first wave of attackers consist of Droid ships and UFO's controlled by a single *Gorf* from a safe distance. The purpose of the first attack is to test your defences.

The real battle begins on level two when a *Gorf* confronts you with Attack and Laser ships.

If you survive this level the *Gorf*s will know that they've got a fight on their hands and will send their toughest pilots — the Space Warp Fighters into the fray. They attack in spiral formation and are armed with torpedoes which wreck your ship with deadly precision.

The final conflict takes place when you confront the Gorfian Flagship. Only the most skilled pilots should apply for this mission as you will have to blast your way through a force-field and then launch a prolonged attack on the ship itself. It requires several direct hits on the Gorfian flagship to eliminate it.

At the end of the mission you will be given a rank based on your performance. Six grades are awarded from Space Cadet to Space Avenger.

Sign on for this challenge at

your local Commodore stockist. You will need a Vic-20 and £24.95 to join the good fight.

Three other new games carts are launched this month from Commodore for the Vic-20.

*Cosmic Jailbreak* casts you as the keeper of the *Cosmic Jail*. Stop the bad guys from all over the universe making a bid for freedom.

More crime in *Money Wars*. This time you play the crook trying to get away the loot.

*Managerie* provides your chance to be a flea for an afternoon. Guide the tiny microbe on a perilous journey through a spider swamp, desert, and on to the mystical wall — hitching rides on other animals as you go.

*Money Wars*, *Managerie*, and *Cosmic Jailbreak* are available now at £19.95.

## TREASURE HUNT IN THE DEEP

### SHARK

*Shark Treasure* is one of the new batch of games from Dragon Data for this new machine.

The idea of the game is to get your diver safely down to the ocean bed pick up the treasure scattered over the sea floor and get it to the surface without being devoured by the killer sharks which patrol the wreck.

Also new this month is a chopper rescue style game entitled *Whirllybird Run*. You have to rescue the hostages whilst avoiding the attack of jet fighters and ground tanks.

The games are due out in July and will be available from Dragon dealers at around £10

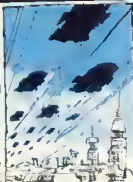
# NEW PRODUCTS NEW PRODUCTS NEW PRODUCTS NEW GAMES NEWS

## TOUGH TEST FOR ALL SPACE ACES

### XENON

Fleet Commanders everywhere must prepare their pilots for the toughest test yet. The Aard's, Paracrafts and the Zorgen Battle Star are massing on the outer reaches of Radon.

You are the commander in the Xenon Space Academy, an organisation which protects affiliated planets from attack by pirates from other galaxies. The survival of Radon rests with your fleet. The aliens attack in three



waves — the Aard's have the power to clone on destruction, delaying your fleet to wipe them out for good and all.

Survive this onslaught and you must fly on through meteors — skillfully refuelling until you arrive on Radon.

Once you have touched down on the besieged planet you will soon be attacked by the Zorgen Battle Star. This final challenge will draw on all your knowledge and skill acquired at the Academy if you are to repel its attack.

Xenon is a shoot 'em up for the 48k Orc from I.J.K. Software. The game is available now from the Blackpool based firm at £8.50.

Also new from I.J.K. for the Orc is a two game cassette with 3D Maze and Breakout on it for £7.50. Candyfloss and Hangman are also available at £7.50 — both for the 48k machine.

## SWEET TOOTH IS AN ANT'S DOWNFALL

### ROMIX

Ant-Eaters are a vicious breed of predators sniffing out their prey with that sinister long snout.

The same snouts will be sniffing out Atari owners to play this latest game cartridge from Romix.

You take the part of an ant trying to dig your way to the surface to pick up sugar lumps and take them back to your lair.

The ant-eater marches up and down on the surface. As soon as you break the surface it can pursue you down the tunnels which you have already created in your bid to get the sugar lumps.

Ant Eater is based on the popular arcade game Dig Dug and should provide stiff competition for the official Atari Dig Dug which will go on sale next month.

On the first screen you face just one eater but these increase one by one as you move up through the screens until there are three of them pursuing you. There are also rocks which you can make fall on your pursuers and delayed-action bombs which you can detonate by remote control to blow up the ant eaters.

Three other new cartridges are on offer from this brand new Atari games line — all in cartridge format.

Attack of CYB-4 is a scrolling shoot 'em up with various aliens and space sectors to be generated.

Princess and Frog is a Frogger type game and Fortune Hunter a classic treasure room adventure.

In Princess and Frog a busy jousting field takes the place of the usual Frogger motorway. Mounted knights rush back and forth across the screen — and the frog must avoid their deadly lances.

In the river you'll find snakes and serpents instead of logs and turtles. An interesting variation of an overworked theme.

The games are available from Atari dealers now or direct from Surrey based Romix at £29.99.

## C & VG's COMPUTER GAMES TOP TEN

### ZX81

1. Flight Simulation (Psion)
2. 3D Monster Maze (New Generation)
3. Chess (Psion)
4. Space Raiders (Psion)
5. DS Scramble (Delcative)
6. Galaxians (Artic)
7. Alien Dropout (Siversoft)
8. Avenger (Abacus)
9. 19 games for 1K (J. K. Greve)
10. Night Gunner (Digital Integration)

### Vic-20

1. Arcade (Imagine)
2. Panic (Bug Byte)
3. Wacky Waiters (Imagine)
4. Cosmids (Bug Byte)
5. Catch Snatche (Imagine)
6. Asteroids (Bug Byte)
7. Golf (Commodore)
8. Amek (Audiogenic)
9. Alien Blitz (Audiogenic)
10. Chophifter (Creative Software)

### Sinclair Spectrum

1. Flight Simulation (Psion)
2. Jet Pac (Ultimate)
3. Penetrator (Melbourne House)
4. Horace goes Ski-ing (Psion)
5. Arcade (Imagine)
6. Transylvanian Tower (Richard Shepherd Software)
7. Ah, Diddums! (Imagine)
8. Hungry Horace (Psion)
9. The Hobbit (Melbourne House)
10. Space Raider (Psion)

### Atari 400/800

1. Dix (Atari)
2. Galezians (Atari)
3. Defender (Atari)
4. Zaxxon (Data Soft)
5. Pac-Man (Atari)
6. Star Raiders (Atari)
7. Miner 2049'er (Big Five)
8. Centipede (Atari)
9. Missile Command (Atari)
10. Space Invaders (Atari)

# NEW PRDDUCTS NEW PRDDUCTS NEW PRDDUCTS NEW PRDDUCTS

# GAMES NEWS

## RETURN OF THE WOOLLY JUMPERS!

### VIRGIN GAMES

The first seven titles from Virgin Games, the new spin-off from their record producing empire, have just arrived.

Predictably there are several space shoot 'em ups with titles like Starfire, Mission Mercury, Space Adventure, and Landfall.

On a slightly more original note is a game called Sheepwalk for the 48k Spectrum. You control the sheepdog as he rounds up the flock that have escaped from the pen. Being careful not to let Rex get too close to the sheep to score them he must also be swift if he is to stop the sheep destroying Farmer Brown's prize radishes and beet roots. See the Reviews pages for our opinion on the game.

The second most original game in the batch is Bug Bomb for the BBC which challenges you to rid electronic grids which provide power for the cities of mutant bugs.

Other games in the range include Yomp — a Froggit type game in which you have to get your soldiers across a busy road.

Golf fans can also play the game on their Spectrum with a simulation for the 16 or 48k machine. Virgin games are in the shops now at £7.95.

## THE AWESOME ROBOTS AIM TO KILL!

### ANDROIDS

If you think of cute characters like Metal Mickey when some body mentions robots then forget it. Start thinking about homicidal laser-spitting death droids!

In Androids, the latest game from Sunshine Software of London, you are being pursued through a maze by the robots. You are armed with a gun — though this has limited fire power and will have to be replenished from time to time by walking over the coloured squares.



Androids is available from Sunshine at £4.95. The game will run on the Spectrum in 16 or 48k.

Also new from Sunshine this month for the Spectrum is space shoot 'em up called Galaxy Attack for the 48k machine. Your ship has crashed on a distant planet. It's a race against time to rebuild your craft in time before the alien Walkers reach it and blast your defenceless crew.

## GIVE YOUR GAMES SOME STICK!

### CONVERSION

If you have invested £20 in a joystick for your Spectrum and then when you got it home found that some of your favourite games are not joystick compatible then you will be pleased that a solution is at hand.

Kempsoft, the software division of the joystick manufacturer, have written two conversion tapes.

The conversion tape is loaded into the Spectrum. A menu appears from which you select the game conversion you require. This is then loaded and you then load your chosen game in the normal way.

Tape one converts Hungry Horace, Horace Goes Skimp, Flight Simulation, Arcade, Penetrator, Spectrum Spectras and Space Zombies.

The tapes cost £4.95 each and are available from Kempston Micro Electronics of Bedford.

## GAMES TO LAST A LIFETIME!

### JUMPING JACK

The next range of games will take "hell a lifetime" to get through all their levels.

It is a range of three games due to be launched in early July, two of them on the Spectrum and one on the Commodore 64.

As we go to press the details are few and far between but we do know a little about Zoom (previewed right), and the other two are Zip-Zap (Spectrum) and Arcadio (64). Both are arcade games featuring more levels than the average player will ever be able to accomplish.

We can reveal that the company is Imagine Software of Liverpool and the game is a 48k only cassette for the Spectrum.

Three games are to be previewed but according to Imagine the main reason for the trade preview is to show off the new 48k game.

Already in the shops from the Liverpool firm is a new game called Jumping Jack. This is the first Imagine game written by a freelance programmer but, like the majority of the firm's other games, is based on an original idea.

You control a little character who appears at the bottom of the screen. Above him are several parallel lines — moving platforms which he must hop on to. The key

is to wait for just the right moment when the gap in the platform appears and then hop up at just the right moment.

Each time you get to the top of a screen you are given one line of a poem — providing an added incentive to get to the end of the game and discover the rest of the verse. Jumping Jack is available from most Sinclair software shops at £5.50.

We have 100 cassettes of Jumping Jack to give away this issue. See page 110 for details but be sure you're quick off the mark.

## EVIL BIRDS ARE OUT TO GET YOU!

### ZOOM

Zoom through the skies blast your way through the enemy and try to save the last survivors of the human race.

This tall order is the object of the latest 3D challenge from Liverpool-based Imagine Software.

The screen shows you a view from your ship's cockpit. You have to fly over different landscapes, rescuing the survivors and refuelling — this keeps your protective shields activated.

But watch out for waves of enemy aircraft, flocks of evil minded birds and anti-air missiles are all chasing you, bent on your final destruction.

The more people you rescue, the higher your score. This involves some daring low level flying. Use your bombs and machine guns to protect your self from the deadly elements and their weapons.

Zoom runs on a 48k Spectrum, is controlled with the keyboard or a Kempston or Filler joystick and costs £5.50.





## PLAGUE OF SWARMERS PODS AND BAITERS!

### DEFENDER ACES TAKE UP THE ATARI CHALLENGE

Pop stars David Van Day and Gary Numan will be presenting prizes at the National Association of Boys Clubs Atari Defender Challenge.

Up and down the country members of the association have been blasting away at the Pods, Swarmers and Baiters to clock up high scores in the hope of going through to the final at the Hilton Hotel on Saturday 25th June.

Of the 10,000 entrants just sixteen super skilled finalists will be firing away for the coveted title of Defender Supremo.

You'll have to wait until next

month to find out the winner but I can tell you some of the finalists clocked scores in the region of 100,000. Like Anthony Brooms from the London Springfield Club who entered as favourite with a whacking great 113,000 and South West regional champ Stephen Harvey with alien-crunching 97,000.

Can you beat the Atari whizz-kids? If you've topped 120,000 drop us a line and tell us about it.

The sixteen finalists will enjoy a no expense spared weekend of fun courtesy of Atari UK including a trip to the Thorpe Entertainment Park and a visit to the



Last year's Atari champ, Craig Hoep, from Manchester, who won his title playing Pac-Man.

cinema to see Return of the Jedi.

The highest scoring Defender player will also take home a video cassette recorder and win an Atari 800 for his climb. Runners up will receive the latest Atari game releases.

## NEW GAMES FROM PHILIPS . . .

They are here at last — the first batch of independently produced games for the Philips G7000 System.

Versions of successful Imagic Games — Demon Attack and Atlantis — are now in the shops for this game-starved machine.

Demon Attack is one of the toughest shoot 'em ups available for the Atari VCS and should give a tough fight to Philips owners as well.

Its multi-wave aliens look good as well as giving a trigger burning challenge just like the versions already seen on the Atari system.

Atlantis has also sold well on the Atari and Intellivision machines and is therefore another obvious choice for Imagic to convert to the Philips.

The game challenges you to protect the beautiful lost city of Atlantis which is under attack from the surface.

You have three cannon installations from where you must attempt to blast the aliens. The games go on sale at the end of July at around the £25 mark.

The Philips range of games now makes Imagic the video games company with the widest number machines in its range. As well as the Atari VCS, Intellivision and Philips they now produce games for Colecovision, Vic-20, and the Atari 400 and 800 home computers.

## VIDEO VILLAINS CONTEST WINNERS

Did you spot the Video Villains in our June issue's special supplement, The Book of Video Games? Are you one of our winners? Read on to find out!

They were an ugly bunch — that Mad Bomber from Activision, the nasty Amidar pig, and Superman's rich-enemy, the evil super-being Lex Luthor. We asked you to place these tough characters, plus ten other video villains in order of toughness. Here in the C&VG offices we worked out our own order — which you may or may not agree with — but we're running the contest, DK?

Top of our tough villains list, the one who would give you the most trouble on the video screens of the world is the Mad Bomber from Activision's Kaboom. Second came the cop from Lock n' Chase, then the Amidar pig, the warrior Doc from Quest for the Rings, Lex Luthor from Superman and finally the fairly harmless desert nomad from Riddle of the Sphinx.

The first three correct answers out of the hat came from Brian Cobb, of Newark, Nottinghamshire, Miles Pennington from Hampton, Middlesex, and Guy Verbit from Malvern Wells

in Worcestershire. The lucky winners will receive five brand new cartridges of their choice courtesy of the new specialist video games shop in West Dayton — the Easy Video Games Centre.

Brian has chosen Demon Attack, Auto Racing, Atlantis, Donkey Kong and Gorf for his Intellivision. Miles has gone for a

series of games including Tron, Gorf, Zaxxon and Venture for his Colecovision system. We're not sure what Guy wants as he was at school when we called to tell him of his good fortune!

The ten runaris-up will receive five book-binder style video game cartridge holders, specially designed by Easy Video.





# I GET A KICK OUT OF YOU!

## THE BIG MATCH ON YOUR GAMES SYSTEM

Atari United make a pretty strong team. They thrashed me 10-0, 15-3 and by a couple of margins which I've got no intention of repeating here.

Three international superstars have been bought at staggering transfer fees and set in silicone to make one of the hardest to beat soccer games you can buy.

The new Realsports game is at its best when two people play. Taking on the VCS itself is rather like Manchester United versus Stoke Pages All Stars on an off day.

You can select the length of the game and choose whether to play against the computer or a friend. The pitch scrolls horizontally. Possession of the ball is maintained by depressing the fire button on the joystick.

To pass the ball first select the player you wish to pass to by pressing the fire button.

This will make your three players glow white in sequence — when the chosen player is white move the joystick in his direction and press fire once more.

Mastering the pass procedure is the key to getting full enjoyment from this game. It'll take a lot of practice to get it right — but once you master it playability

of the cartridge takes a quantum leap forward.

A nice touch on this soccer simulation are the sound effects. You get the cheer of the crowd and the referee's whistle when a goal is scored.

A major improvement on Atari's earlier soccer cartridge. The game will be in the shops in July at £29.99.

If you look hard enough you may still find a Pele Soccer in a faded box amongst all the new games. Chances are it'll be at a knock down price and, at around £20, it'll give you an adequate game football match at £10 less than the premium priced Realsports cartridge.

The old Pele cartridge differs from the new one in that it shows you a vertical view of the pitch with the players scrolling up and down screen.

Again you control three players through passing as much more of a hit or miss affair than with the new version and the graphics are very basic in comparison. The footballers look more like little robots than live flesh and blood.

The computer makes a tough opponent — though not as tough as in the Realsports cartridge.

out of the wall you've got to replace it to score points.

Intellivision owners have been included in the new Activision releases though still nothing for you 67000 gamers.

Happy Trails is the name of the Intel game and you play the part of a crockety old prospector searching the hills of the old west for treasure.

The screen is made up of a spaghetti junction of trails. You don't move the old chap — but move the sections of trail, jigsaw fashion, to make a continuous track.

Happy Trails is the work of Carol Shaw of River Ridge fame so the game has a lot to live up to. Don't miss next month's C&VG to read Joystick Jury's judgment on this new cartridge.

The third offering from Activision is for the Atari VCS — called



Pele Soccer has one really irritating flaw.

Each time a goal is scored you are treated to a celebratory firework display.

This is quite pretty the first time around but when the VCS has knocked in its twelfth goal to your nil it becomes quite simply annoying.

The third option for football fans wishing to play the game on their VCS comes from Mattel and is just one of the games in the new M Network range.

This will be the cheapest of the trio retailing at around the £15 mark.

Seasequest, and looked at first glance like the dulllest of the bunch.

Your task is to rescue divers who are returning to the sub with treasures of the deep.

Seasequest is in the shops now at £29.95 as is Happy Trails at £24.95. Dink will be in the shops in August, also at £29.95.

## ACTIVISION'S GAME SET AND MATCH

With the top tennis stars slugging it out on the centre court at Wimbledon many of you will be glued to the TV screen.

Should you decide to plug in your VCS between sets what better cartridge to choose from than Atari's new tennis challenge in the Realsports series.

Another vertically scrolling game though you have four players instead of three as in the Atari cartridges.

M Network International Soccer will provide the real competition for Atari Realsports Soccer when the few remaining Pele Soccer cartridges are withdrawn or snapped up.

C&VG verdict on the Soccer cartridge — the Realsports version is the superior game though if you buy the M Network game you may have enough spare cash to get another game or even a new joystick to help you score the winner!

Featuring a 3D perspective you are serving into the screen — facing your opponent! — rather than the early horizontal pong-style tennis.

The new Atari cartridge is an improvement on the existing Activision Tennis cartridge.

It has a score board which enables you to write in your name and that of your opponent.

Authentic tennis scoring is a feature of both Atari and Activision carts and you can play against an opponent or take on the computer.

For superior graphics the Atari cartridge gives the most convincing game of video tennis though at £29.99 you may find it a good deal dearer than its Activision counterpart which has been around for a couple of years now and therefore selling at a reduced price.

## CONQUERING CONVERSIONS

Activision recently showed off their new releases at a special press preview in London.

The titles seem to underline the leading games firm's commitment to developing original games rather than buying licences to convert hit arcade games like Atari and Parker Brothers.

The most original of the trio is Dink which offers the best video pigs I've seen and certainly puts those pink blobs from Amstar in the shade.

The idea of the game is to protect your little porker from the big bad wolf who is huffing and puffing in his attempt to blow your wall down.

Every time he blows a brick



# Games

## A name to PLAY with



**PGA TOUR 98** Tiger Woods PGA TOUR 98  
CHAMPIONSHIP GOLF IN YOUR  
OWN HOME by EA and Thomson VCA USA



**THE SCIENTISTS**  
... THE FIRST ARTS AND SCIENCES  
BUT REWARD THE ARTS AND SCIENCES by EA and Thomson VCA USA





### SHEEP WALK

EXPERIENCE A SHEEPDOG TRIAL IN YOUR LIVING ROOM! IT'S A ONE-MAN SHEEPSHOD TRIAL by Gregory Thiele VCA 1993



### STAR WARS

WIDEN THE GALAXY OF THE XTARDAN BATTLE OF STRATEGY AND SKILL by Martin Davies VCA 1991



COMMAND: IT'S AS EASY AS TAKING THE IMPOSSIBLE by Gregory Thiele VCA 1991



### LANDFALL

THE MOST EXCITING AND REALISTIC SPACE SHIP LANDING SIMULATOR by Gregory Thiele VCA 1993



### BUG BOMB

A BRAND NEW ARCADE GAME by Gregory Thiele VCA 1991



### SPACE ADVENTURE

THE FIRST SPACE ADVENTURE IN A SEEMINGLY ABANDONED SHIP ORBITING THE OUCH SPACE by Gregory Thiele VCA 1991

## VIRGIN GAMES GANG

- With each title you buy before the end of August you get:
- 1. An offer of One Year's Free Membership of The Virgin Games Gang
- 2. Free Entry into The Virgin Games Gang draw on September 6th
- First Prize - £500 of computer hardware or software of your choice
- Second Prize - £100 of computer hardware or software of your choice
- 150 runner-up prizes of Virgin Games and 150 runner-up prizes of Virgin Games T-shirts or posters.
- 2. A specially mixed piece of music by Steve Mallage - to play while you play.

- If your local retailer is not yet stocking Virgin Games - tell him he should be - but, however, you can order direct from "I've got no good local retailer" dept, Virgin Games Ltd, 61-63 Portobello Road, London W11, enclose a cheque or postal order for £7.95 for each title you want and don't forget to put your name and address - people do you know!
- Allow up to 28 days for delivery before complaining.
- Don't forget, if you want to make some money to buy some games from us or do whatever else you get up to and you have written an original games program with good graphics for any of the popular home computers other than the ZX81, send a cassette version to us - it could make you rich.

# £7.95

R.R.P.

## Computer FUN... available NOW!





## SKIP THE SKIPPER!

A brief flirtation with Nintendo's Sky Skipper in the arcades way back in autumn of 1982 whetted my appetite for the forthcoming Atari version. Unfortunately it has suffered much in its conversion.

The original boasted cute graphics which involved sharp joystick control to bomb gorillas over a city skyline and rescue animals.

The gorillas hurled coconuts skywards and were dizzied by being hit on the bonce by the pilot's bombs.

The VCS version has a maze taking the place of the skyline and although the plane is capable of the same instant manoeuvring, it is more difficult to end up facing the right direction on a VCS joystick — and this is a game where control is critical.

Upon bombing (and dizzying) the gorilla, the player releases a series of caged birds or animals which he must then rescue by flying into them.

It is a game of millimetre control and usually ended with me convinced that had I hit the joystick to change direction but it

had not registered, very frustrating but not as addictive as it should be.

The monkeys do not throw nuts although clouds cause problems on later screens and the game spends up considerably on the fifth screen difficult to achieve with regularity. Four skill levels and the usual Parker packaging for £29.95.

### THE VERDICT

A game which badly misses the sharp cute graphics of its predecessor and becomes dull off too quickly. There's better to be found in the Parker catalogue.

- Action
- Graphics
- Addiction
- Theme

Having gorged myself on dozens of turns at Mattel's Borgtime I was with great anticipation that I plugged in the next cartridge from the company. Alas, Vectron is not in the same league.

The idea of the game is to fill in each screen with power blocks and energise them. The blocks are made to appear by depressing the fire button on the side of the controller. Level a laser blast at it by manipulating the control disc. This energises

the block. When the play area is completely filled with charged blocks you can then go on to the next screen.

All the time you are trying to fill the screen you are under constant attack from the aliens. These come in different varieties and the toughest ones are saved for the later screens.

Each new screen is a different shape to the previous one and will necessitate a modification of strategy.

To fire your laser gun you simply move the disc in the direction of the target and the gun will fire automatically. An original game — but a lamer from good one.

Everything on the screen appears to move except for your laser base which is a permanent fixture at the top of the screen.

You spew out laser fire in all directions without rhyme or reason as it is impossible to tell which is the main aim — killing the aliens or filling the blocks. The result of this is that achieving either gives little satisfaction. Vectron is in the shops now at £29.95.

For a far better investment check out Borgtime or Pitfall.

### THE VERDICT

An original idea — but a very dull game.

- Action
- Graphics
- Addiction
- Theme

Smurf Rescue is the cutest cartridge ever to plug into a video games console. If anyone ever asks you how good are the graphics on Colecovision plug in the Smurfs and let them see for themselves.

The idea of the game is to rescue the Smurfette who is being held captive in Gargamel's castle.

As the gallant Smurf you must walk through fields, forests, caverns and finally into the spooky castle itself.

To thwart your foe you bid the evil Gargamel has trained bats, hawks and spiders who dive bomb you as you make your way to the castle. By pulling back on your controller you can duck down to avoid these.

As you walk along the path other obstacles must be hopped over such as ponds, pits of gas, and fences. By timing your jump carefully you can land on just the right spot to pick up bonus points.

The graphics of Smurf Rescue are what make the game. The bright colours and plodding walking movement of the Smurf make it very similar to the actual character.

To enhance playability there is an energy level rating which goes up and down according to how quickly the Smurf moves through the various stages.

Just one gripe — with the joysticks rather than the game itself — it's really difficult to manipulate the disk to make the Smurf run into a jump without the controller slipping in your hand. Roll on the new improved Colecovision sticks — these should improve Smurf and most other Colecovision games.

### THE VERDICT

Beautiful to look at, but not the toughest game you'll come up against.

- Action
- Graphics
- Addiction
- Theme







## PLUG INTO THE ARCADE

Atari keep the arcade conversions coming thick and fast with two new titles lined up for a September release.

Galaxians will need no introduction to the more seasoned videogamers as it was a monster hit in the arcades at the height of the post space invaders boom in the early 1980's.

It will be interesting to see how well it does on the VCS having been so long out of the arcades. My guess is that it may be just a little bit too late as there are already dozens of good shoot 'em ups already available for this machine — Demon Attack, River Raid and Defender to name but three.

Slightly more up to date is the Atari home version of Jungle Hunt — Taro's Tarzan and Jane style adventure. You must rescue the fair maiden from the cannibals who have carried her off — swinging through trees — wrestling with crocodiles — all swash-buckling stuff for VCS owners.

On a more educational level come the first two Atari Sesame Street titles for youngsters. Cocky Monster and Soicesters Castle will be in the shops soon

with more educational titles on the way for Christmas.

The games licensing business is hotting up with several big arcade games being bought up by Atari, Colecovision and Mattel.

Atari have Pole Position, Pengo, Joust and Moon Patrol all poised to attack the Christmas market. Neither of Atari's main rivals on licensing — Paika Brothers and Coleco — are going to sit back and watch this new batch of games arrive in the shops unchallenged.

Paika have Tutankham, Q\*Bert, and Super Cobra, all of which will be supported with the traditional Paika TV advertising blitz.

The Colecovision trump card games will be Buck Rogers, Donkey Kong Junior, and the new Super Zaxxon — though the main thrust of Coleco's TV advertising campaign is likely to concentrate on selling the Colecovision itself

Intellivision owners will share some of the action with these hot titles signed up from the Japanese arcade aces — Data East.

Burgertime and Mission X have already been converted for home use.

Also in the pipeline is a fantasy road-race game where you can leap into the air.

One thing is certain — even when you are not using your TV set with your games console you are going to see a lot of games on television over the next few months.

## THINGS GO BETTER!

Coca Cola — that famous soft drink — is now available as a video game! Every time you buy a can from an American made vending machine you get a game on a video machine.

The new vending machines

have a built in screen measuring 6 by 4 inches which gives a free go every time you buy a coke.

The game is called Catch-a-Coke and you play the part of a hard-pressed delivery man who is being showered with coke cans by a mischievous monkey perched at the top of a palm tree. The more cans you catch the greater your score.

To stop long queues gathering at the coke machine the game has been made so tough that it will only last around 20 to 30 seconds. The owner of the machine can adjust the skill level to make it still tougher if necessary.

Coca Cola say the video game is as a sales tool and believe it will encourage America's army of games-mad teenagers to buy more coke! One of these exciting new machines will be coming to this country during the summer — but exactly where it will end up is still a mystery.

## TOP TEN

| GAME         | MANUFACTURER | GAME              | MANUFACTURER |
|--------------|--------------|-------------------|--------------|
| 1 Phoenix    | Atari        | 6 Donkey Kong     | CBS          |
| 2 Pac-Man    | Atari        | 7 Defender        | Atari        |
| 3 Frogger    | Parker       | 8 Ms Pacman       | Atari        |
| 4 Vanguard   | Atari        | 9 Demon Attack    | Imagic       |
| 5 River Raid | Activision   | 10 Space Invaders | Atari        |

All the above cartridges are produced for the Atari VCS home video games centre.

## IT ALL LEADS TO A TOP PRIZE!

And just as I was about to beat Derek's Laser Space Blast record, I jerked to the right, the joystick was taunted and went spinning from my hand. Helpless I watched as the aliens took my last life.

Every TV game has a story like this. A sorry tale of crossed wires, joystick plugs loosened at critical moments and listfuls of flax.

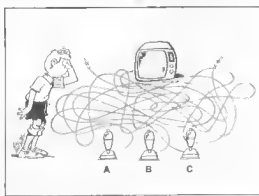
We're offering the chance for five of our readers to end joystick jealot forever. There are five Cynex Remote Control Joysticks to be won in our Crossed Wires competition.

Look at the picture of a con-

lused games player (right) and see if you can work out which joystick he should use to play the game.

Unfortunately a weird tangle of wires has made the choice more difficult than it ought to be. If you can work out which joystick our games should pick up, send it in to Crossed Wires, Computer & Video Games, Dorian House, Herby Hill, London EC1R 5JB.

We need to receive your entry before August 12th, then the five correct entries out of the hat win a Cynex joystick worth £70. Usual Computer and Video Games competition rules apply.



New this month  
**SHARK ATTACK**  
for the 16K Spectrum

## GAMES THAT ARE HARD TO BEAT

Why? Because every single Romik action game is professionally written in machine code to give you all the thrills and action of a fast-moving arcade game. Everyone recorded on top quality tape, most of them playable either from the keyboard or with joysticks.

A lot of thought and development goes into every game - and we guarantee no bugs to drive you mad, no infuriating gaps to interrupt your fun.

Whether pitted against Invaders from alien worlds, tracking hungry sharks or frantically stalling the melt-down of a nuclear reactor you can be sure that if it's a Romik game you'll have a battle on your hands. The kind of battle that leaves no room for mistakes or hesitation.

### COMING SOON

Romik promise at least one new game every month, and soon there'll be Romik games for the Atari and Lynx computers.

### FREE COMPETITIONS

Every action game purchased brings a free entry into the national competition to find the Supreme Champion, and free entry into the annual Romik Grand Master competition with its fantastic prizes.

### TOP PRICES PAID!

We're always on the lookout for new, top quality machine code arcade games for any machine. If you have what you consider a marketable game, let us know. Nobody pays higher royalties than we do.

### GAMES AVAILABLE NOW

#### Unexpanded VIC 20

Martian Raider  
Sea Invasion  
Power Blaster  
Space Fortress  
Multisound Synthesiser

#### Expanded VIC 20 (3K, 8K or 16K)

Time Destroyers  
Moons of Jupiter  
BBC Model A or B  
Asterix Smasher

#### Dragon

Strategic Command

#### ALL THE ABOVE GAMES COST £9.99 ZX81

Super Nine - 9 1K games £9.99  
Galactic Trooper (16K) £4.99

#### 16K OR 48K SPECTRUM

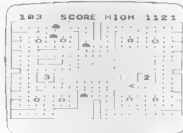
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**TOP SECRET...** Robert to all readers... message begins... After a tough journey I've managed to get right into the C&VG office while remaining inconspicuous. With great difficulty I've erected a transmitter on the roof so that I can send my reports safely without them being intercepted.

It was awful! There were bugs everywhere. But not any more. The office is now completely free of bugs and I shall stay here for as long as it takes to ensure that this reign of terror can never return. I'll be reporting monthly on any infiltration of the magazine's pages, and will keep you informed... message ends.

All bugs have now been banished, never to return, and the computer room has been pronounced bug free. All that remains to complete the clean up is to expose those bugs which were in residence before I arrived.

## ATARI — TEN COMMANDMENTS

Firstly there was the Ten Commandments game for the Atari on page 84 of the June issue. Many of you were having problems with line 14693. I have now been assured by the author that this line is not necessary and may simply be deleted.

## ORIC — SNAKES

Although Snakes for the Oric on page 53 of June's issue was bug free when it left our reviewer, Mal Function appears to have crept in while the printer's back was turned.

The small squiggle in line 30 is supposed to be a quotation mark, and the one after line 150 is, as most of you realised, the start of line 160.

Not content with interfering with the printing, Mal has also changed the keys which the instructions say are used to control the direction of the snake.

Despite the printed instructions the snake is controlled as follows: 7 up, 6 down, 8 left and 5 right. You can alter line 130 to use any keys you wish; I preferred Q and A for up and down and C and V for left and right.

If you wish to use the cursor keys as in the instructions, you will have to substitute the letter in quotes in line 130 to read CHR\$(X) where X is 8, 9, 10 and 11 for left, right, down and up respectively.

Another tip for Oric owners comes to us courtesy of the Tangerine Users Group. If you intend to use a lot of string space in your program, you may find that the strings overwrite the character set in RAM. This can be cured by making the first line of your program HIMEM=#87FF.

## VIC 20 — GHOST TRAP

Although the instructions say otherwise, use the Z and X keys to move left and right if you'd rather use the cursor keys as printed, change lines 104 and 105 to IF X=31 and 23 respectively.

# BUG HUNTER

## TI 99/4a — SKI-ING

Texas owners, I admit, have suffered badly at the hands of the bugs. Most recently there was the Ski-ing program, for which we sent out many hundreds of correction sheets with what we thought was the definitive version.

Well, it was almost! The screen positions for the gates are held in DATA statements as screen coordinates but they appear to be the wrong way round in their pairs.

To correct this, alter the READ statements in lines 290 and 360 290 should now read READ B,A,C and 360 should be READ B,A. The program will then work. I know — I've played it myself!

## SPECTRUM — CANYON LANDER

Another attack on our instructions came in Canyon Lander for the Spectrum in the May issue on page 68. Although the instructions say that control is through the I and O keys, it should read I and 0. This is controlled by the IN statement in line 110 and can be changed if you wish. The relevant IN locations are in the Spectrum manual.

## VIC-20 — PROTECTOR

Not really a bug this, but it puzzled quite a few of you struggling with Protector for the Vic on page 48 in June. When run, the program appears to stop and do nothing; it is in fact waiting for you to start the game by pressing the fire button on the joystick. This is accomplished in line 90 and can be altered or removed if you wish.

## HINTS AND TIPS

As far as I know, the bugs are now extinct — at least until next month. Remember, this is the page which you help to write. So if you have any suggestions about how a C&VG program could be improved please send it in.

We would also like to know about any tips for macros in general. I'll pay £5 for any which are published. Tips for this month are for the Sharp and Vic-20.

For the Sharp comes a conversion of Mad Max, published for the MZ80K in May 83. To allow the program to work with disc Basic the program should be altered as follows:

```
Replace POKE 17828,0:GET A$ with
USR(ST):A$=CHR$(PEEK(53247)) and
install the machine code by adding
these two lines
6 LIMIT53339:ST=53240:FOR XT=0 TO
6:READ DA:POKE ST+XT,DA:NEXT
7 DATA 205,27,0,50,255,207,201
```

Also, says J. Leonard of Penzance, if the last variable on line 515 is changed to D\$ then the right person will get the credit for the highest score.

Final tip is for Vic owners trying to use a 16k expansion to play Logger from the April issue. It comes courtesy of Mike Davies from Dyfed, Wales.

Before loading listing one, load the following program:

```
1 POKE 36869,PEEK(36869) OR 13
2 POKE 9216,0:POKE 9217,0:POKE
9218,0
3 FOR A=43 TO 50:READ B:POKE A,B:
NEXT
4 NEW:DATA 1,36,3,36,3,36,3,36
```

Then change listing one: Line 5 becomes POKE 36879,25 and 65 starts: FOR I=5120 TO 9631...

Finally change all values in listing two between 7680 and 8185 by subtracting 3584, then change all values between 38400 and 38905 by subtracting 512.

To complete the change, change CL in line 430 to read CL=33792.

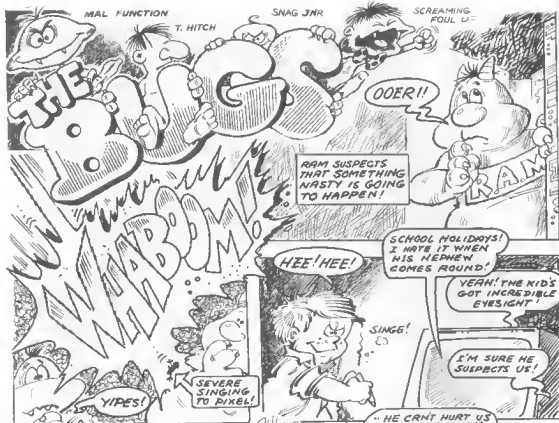
To return your computer to a 16K machine after playing the game type SYS 64824 and all will be normal.

Finally, for those Sinclair owners who wondered why there were two Spectrum programs in July and no ZX81 programs, Zax's V is in fact for the ZX81 and not for the Spectrum. Crossed wires in our production department!

## BY ROBERT SCHIFFREEN

Writes to me at Bug Hunter, Computer & Video Games, Durrant House, Horbal Hill, London EC1R 5JB





# Announcing more exciting programs for the BBC.

Acornsoft is the software division of Acorn Computers, the company that designed and built the BBC Microcomputer. Here are four more exciting programs, all designed to get the most from your BBC Micro.

**Magic Garden** (£9.95) is a cassette-based on Shirley Conran's successful book. It's a problem-solving program which provides the complete beginner with instant answers to the questions of what to plant and where. Simply tell the computer whether you prefer a shrub or a flower, the type of soil, light and shade conditions and required flowering time and the computer will rum up with a selection of possible plants.

**Draughts & Reversi** (£9.95) is a cassette containing two traditional board games for you to play against the computer. Both give a graphic display of the board on the screen and you can enter your moves with either keyboard or joystick. The games can be played at varying levels of difficulty and on the higher levels you will find the computer to be a very worthy adversary.

**Hopper** (£9.95) is a game on cassette which can be played with either keyboard or joystick. Hop the frog across the busy motorway trying to avoid four lanes of fast-moving traffic. To get across the river to the frog's lair you must leap on to the logs and turtles' backs, but beware of the diving turtles, the crocodile and the snake.

**BCPL** (£99.65) is a flexible modern structured language that's very easy to learn. The package consists of a BCPL language ROM, a 40/80 disc and a 450 page User Guide. The disc contains the BCPL Computer, a Screen Editor and a 6502 Assembler. BCPL is particularly good at handling Input and Output and is ideal for writing utility programs and to develop games and commercial packages.



## How to get Acornsoft programs.

If you're a credit card holder and would like to buy the programs shown in this advertisement, or if you would like to know the address of your nearest stockist, just phone 01-200 0200.

Alternatively, you can buy the programs directly by sending off the order form below to: Acornsoft, c/o Vector Marketing, Denington Estate, Wellingborough, Northants NN8 2RL.

Also use this form if you would like to receive the current free Acornsoft catalogue.

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# ACORNSOFT



# ARCADE



Fancy combining your interest in pinball with becoming a famous film director? That's the offer being made by the Pinball Owners Association.

The association is planning a 30-minute video about their favourite pastime — and it will be produced by a top video company based in London. All you have to do is come up with an original idea for a script.

If you want details of the competition, which was launched recently by the association, or if you reckon you have a good idea for the screenplay, write to the Pinball Owners Association at "Arcade", 485 Cranbrook Road, Ilford, Essex IG2 6EW.

You can also help out the association by telling them where there's a good pinb with some pinballs. They have been forced to move from the pub used for monthly meetings because all the pinballers have been taken away. So members are looking for a good pub in the Greater London area that has a couple of tables and would wait come their custom. Any ideas?

Things are quiet on the pinball front at the moment with few new machines hitting the market. However Gottlieb are bringing out a machine called Royal Flush. This is hardly a new table to pinball fans as it's a remake of an older electromechanical game. With Bally refreshing their classic Eight Ball Deluxe machine recently perhaps this shows a lack of new ideas among the manufacturers. But with innovations like the still mysterious Williams Joust double ended machine, perhaps we're talking too soon.

Good news from America is that the home of the pin is seeing a small revival in interest in pinball among arcade owners. They are finding that a reconditioned table often takes more cash than one of the older and less popular video games.

## SPACED OUT LASERS

Laser disc technology is in the British arcades with the exciting Astron Belt game.

As we write Arcade Action this month, still only two of the systems have found their way into the country and only one into an arcade: the Crystal Rooms arcade at Leicester Square in London.

In the search for ever-increasing realism, laser disc games which use film rather than computer graphics seem to be the future. And the arcade industry is keen to get to grips with it.

Importers, Taitel Electronics are selling containers full of Astron Belts before they even reach these shores and the machine is being hailed as the saviour of arcade gaming.

But as in most pioneering ventures, Astron Belt has a few rough edges as a game and should be judged as a hint to what will be possible in arcades within the next year.

The game is set in space and features a Buck Rogers type craft, composed of computer graphics, superimposed on a "real life" background.

As the player controls the craft it swings across the screen, while behind it, the laser disc film features dark moons, and planets, sunsets, a deadened black hole and all the other scenes you might expect to find on a space odyssey.

The flight takes you over alien landscapes through

### ASTRON BELT

Deuster-like space stations and up against the enemy craft.

The game reacts to your hit by exploding ships which it judges you have hit and turning the screen into a blaze of fire.

The controls in the cockpit feature a futuristic steering wheel set in front of a large 26" colour monitor but the game also comes in a stand-up cabinet with a standard screen and joystick format.

Laser discs do not wear and are easily changed, so that a cabinet once installed can be altered to provide the latest game. Rumour has it that the next laser disc game available for the Astron cabinet, will be a diving game composed of real race scenes and even cars driven by recognised grand prix stars.

So you could tune up on a starting grid next to James Hunt!

Realism in the cockpit model is enhanced by a stereo sound system which emanates from just behind the player's ears and a vibration seat which gives realistic vibrations which are supposed to tie in with the game. Actually it shudders and vibrates on the explosions for more than is comfortable.

On the monetary side, it's 40p a turn or £1 for three goes which shows the expense of producing these cabinets. But any arcade player who wants to have a lu-

ture in gaming should try his hand at Astron Belt as soon as possible.

However, it remains to be seen if Astron Belt is the shape of games to come.

And if you want to see as much scenery as possible, put in plenty of money before you start as the game will let you continue from where you left off.



## TIME TO TAKE YOUR PICT!

### HADRIAN'S WALL

The Pictish invasion is over with the Romans victorious which is pretty tough if you're a Pict on the wrong side of Hadrian's Wall.

That famous last of Roman engineering is the setting for a new game which bears little resemblance to early A.D. history.

You play the part of a last survivor of the Tertian hordes, stuck behind enemy lines and wanting to get back to the glan-

Amid with a joystick and a jump button, you run along the battlements jumping over cracks in the wall and dodging fireballs and arrows flung at you by the pursuing legions.

A solitary Roman occasionally patrols the moat below the wall and will hit rocks and arrows up at you which have to be dodged. It is all set against a time limit and if you can't complete each part of the wall in time then you may lose the dead Roman on the wall. He comes straight for you and there's little hope of escape.

If you do manage to get to the top of the wall (than an ancient Roman escalator will take you the river and freedom. Jump into



your boat and away you sail — down the river Scramble fashion — until you are back in familiar territory.

Back in Loch Ness and who's there waiting for you? Nessie rises her head from the depths and before you can smooth your kilt, you have to rush over and send her pecking — back to the primeval muck while you go back to the well to bring the next Picl home — only this time the going gets harder, more snarls, less time.

## CAPITAL OF THE VIDEO GAME WORLD

### OTTUMWA

If you fancy yourself as an arcade champion (then there's now a way to get your score registered around the world).

A place in Iowa State in the US, going by the unlikely name of Ottumwa, has set itself up as the arcade games capital of the world.

The Video Game Manufacturers' Association has approved the Ottumwa set-up and the town now houses the only official international scoreboard for video games.

Players call in their scores by phone and have them registered after being verified by the local arcade owner. It is currently receiving 50 to 60 phone calls a day at 01-01 515-684-6421 (from Britain) and ask for Walter Day.



## FUN WITH FIREBALLS...

Asteroids were mean but at least they travelled in straight lines. In Mad Planets the rogue heavenly bodies having developed homing instincts will prove decidedly tricky for all space skippers!

A Buck Rogers joystick-complete with fire button and a spinning paddle lies between you and collision course.

The planets wheel on to the screen as red fireballs, rapidly turning into Earth-like planets complete with orbiting moons. While in fireball stage the planets are vulnerable to your fire but otherwise they are invulnerable and their moons must be picked off first!

The moons sometimes fly out of orbit, turning into red dust and, if ignored, these too will turn into planets. If too many planets survive on the screen a rosy super planet will be spawned by one of

### MAD PLANETS

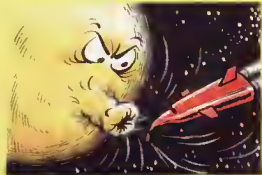
the spinning moons.

In order to clear the screen, you must first blow up all a planet's moons — it then turns red and becomes vulnerable. It also hurtles around the screen as its orbit decays.

A cleared screen results in a fresh batch of yellow fireballs and then you move on to purple ones. If you succeed in clearing this third onslaught, then comes a bonus screen in which spacecraft fly through the void.

These must be collected for bonus points and blowing up a rushing meteor will increase the number of spacecraft on screen.

Good graphics and speedy action in which you can never let your finger stray far from the fire button. One tip — don't get caught in the comets.



## ALIENS IN STEREO

### GYRUS

From the outer reaches of the Solar System, you command the spaceship Gyrus on its journey to Earth.

You approach each planet in a circular orbit, starting with far-off Neptune. Each planet is the host to a horde of aliens eager to get out of the confines of their atmosphere to launch an attack against you.

Extrasons, Patarrons, Telenons and Gyransons make up the alien fleets and your job is to attack them while they are still a distant blur in the distance.

An eight-way joystick and marvellous stereo background

music help to lift this space game out of the ordinary. There are 23 stages as from Neptune you fly to Uranus, Saturn, Jupiter and Mars, on your way back to Earth.

Every four stages, you enter the chance stage where your craft is invulnerable to the attacks of the Zigmas and Dogmas. A good chance to boost the score.

An additional advantage of the Gyrus game is that a successful commander can take over his vanquished enemies' fleets and (like Tacsen) move more than one fleet in formation.

The quest finishes before a good graphic representation of the Earth.



## E.T. — ARMED AND VERY DANGEROUS!

### KOSMICKROOZ'R

The story continues after this new extraterrestrial phones home in Kosmick Krooz'r.

In this video game, your mission is to guide Krooz'r back to his own galaxy light years away. The ugly little devil has far worse than FBI agents and scientists on his bad list.

The journey is beset with problems and obstacles are thrown up by the evil aliens who are out to get Krooz'r.

Luckily he is well-equipped with lasers and he can fire back. When the enemy gets too close, you have to look for the smart bomb button or the energy shield.

The smart bomb turns green and that's your signal to unleash it. As you wander homeworlds between the planets, it is sometimes necessary to drop in to the intergalactic garage and try to buy up a few spares to get a decent space craft together.

A few items like a fuel tank, a box of bullets or a motor and Krooz'r could soon have a ship worthy of another base.

Eventually the mother ship comes onto the screen and when one of the three entry ports lights up Krooz'r can be guided into the onboard beam.

But take care, a slip on the beam here and its back to Earth and another handful of 5 pences.

By PAT NORRIS

RUNS ON A SPECTRUM 16K



# SPACE WAR

Earth is being threatened by aliens from a sinister galaxy who want to colonize our planet and enslave all the inhabitants. The aliens are driven to desperate and violent action as their home planet is gradually being dragged into a giant sun — and will soon become a cosmic cinder. So will their people — unless the alien warriors find a suitable new home.

The alien and earth fleets are about to meet for the final conflict on the fringe of our galaxy. The future of earth rests on the outcome. The battle zone has been strewn with space mines — and large asteroids are also in the area. Thus the scene is set for this two player space battle...

The earth fleet is represented by yellow symbols, the alien fleet by grey. Space mines are represented by blue dots, and

```

1 INK 0: BORDER 0: PAPER 0: C
2 GO TO 3000
3 LET JJ=INT (RND*2)
4 LET KK=1: LET LL=4
5 IF JJ=0 THEN LET KK=5: LET
6
7 FOR V=144 TO 162
8   FOR d=0 TO 7
9   READ a: POKE USR CHR$(V)+d
10
11 NEXT d: NEXT v: GO TO 25
12 DATA 240,220,240,162,136,64
13
14 DATA 16,56,124,166,166,146,
15
16 DATA 31,39,15,109,17,42,8,8
17 DATA 0,56,132,94,255,94,132
18
19 DATA 0,0,42,17,109,15,39,31
20 DATA 42,28,73,93,95,62,28,8
21 DATA 0,16,64,136,162,240,22
22
23 DATA 0,28,39,122,255,122,33
24
25 DATA 28,60,126,255,254,126,
26
27 LET u=0: LET t=0: LET af=4:
28 LET h=4
29 FOR b=1 TO 10: PRINT AT INT
30 (RND*20),INT (RND*32): INK 5;"
31 NEXT b
32 DIM a(w): DIM d(w): DIM e(w)
33 DIM f(16): DIM h(w): DIM p(w)
34 DIM s(w)
35 FOR z=1 TO 8
36   LET b=3
37   IF z>4 THEN LET b=7
38   LET p(z)=b: LET h(z)=0: LET
39   s(z)=5
40 NEXT z
41 LET y=4
42 FOR z=1 TO 4
43   LET o(z)=y: LET d(z+4)=y: L
44   ET a(z)=0: LET a(z+4)=31
45   LET y=y+4
46 NEXT z
47 LET y=4
48 FOR z=1 TO 6
49   LET u=1 TO 6
50   IF z>2 AND z<5 THEN LET u=1
51
52 IF z>4 THEN LET y=17
53 LET e(z)=y: NEXT z
54 LET y=0
55 FOR z=1 TO 2
56   LET f(z)=y: LET f(z+4)=y
57   LET y=20: NEXT z
58 LET f(3)=15: LET f(4)=19
59 FOR z=1 TO 4
60   PRINT AT d(z),a(z): INK 4;"
61   AT d(z+4),a(z+4): INK 0;"H"
62
63 FOR z=1 TO 6
64   PRINT AT e(z),f(z): INK 2;"
65
66 NEXT z
67 FOR KK TO 11

```

```

147 LET i=4: IF t>4 THEN LET i=
6
148 IF h(t)>9 THEN GO TO 154
149 FOR c=1 TO 25
150 PRINT AT d(t),a(t): INK 7,
151 BRIGHT 1:CHR$(P(t)+144)
152 IF INKEY$(c)="" THEN GO TO 16
2
152 NEXT c
153 PRINT AT d(t),a(t): INK 1;C
154 CHR$(P(t)+144)
154 NEXT t
155 GO TO 146
156 LET KK=5: LET ll=0
157 IF t>4 THEN LET KK=1: LET l
158 LET rh=0
158 INPUT;"MODE? (x,d,f,h,t+c
t+c)=,t+c+f) :$
172 LET th=0

```



asteroids by red symbols. During play the mines will remain static, but the asteroids move around in a random fashion.

If any ship hits a mine, both will be destroyed, but if a spaceship hits an asteroid only the ship vanishes permanently — the asteroid reappears in another part of the battlezone. If two ships collide both will be destroyed.

All ships are equipped with laser cannon. When a ship is hit by laser fire it will glow red and will receive a random damage factor. If the damage factor exceeds nine then the ship will be destroyed.

The movement of ships depends on the amount of damage they have suffered, on how their laser cannon energy. Damage is not repairable during the game, but cannons never improve.

Players take turns to control their fleets. Each ship flashes white when it is ready to be moved.

Various signs control the ships. Move ship = m. Move ship and fire at end of move = x. Put ship into hyperspace = h. Fire only = f. Turn only = t + course. Turn and move t + course + m. Turn and fire = t + course + f. Course controls are 1 = up, 5 = down, 7 = left, 3 = right with 0, 2, 4 and 6 controlling diagonal movements. Key ENTER allows input.

As an example, to turn and fire using a ship that is on course "3" input "5f". This will change the ship's course so it is facing downscreen and the laser cannon will fire.

A ship may be turned to any one of the eight directions except a directly opposite one.

```

175 IF LEN #3>3 THEN GO TO 178
180 IF LEN #3=2 THEN GO TO 488
181 IF LEN #3=3 THEN GO TO 282
185 IF LEN #3=1 THEN GO TO 178
190 IF #3=" " THEN GO TO 950
195 IF #3="h" THEN GO TO 365
200 IF #3=" " OR #3="x" THEN GO
TO 210
201 IF LEN #3=1 THEN GO TO 178
202 IF ABS (P(t)-URL #3(2))=4 T
HEN GO TO 178
203 IF #3(3)="a" THEN LET ts=1
204 IF CODE #3(3)=102 THEN GO T
O 488
205 IF #3(3)="a" THEN GO TO 488
206 GO TO 178
210 LET (P=0: LET ts=0
215 IF #3="x" THEN LET (P=1
220 FOR q=1 TO 3(t)
222 BRIGHT 0: PRINT AT d(t),a(t)

```

```

225 IF P(t)<3 THEN LET d(t)=d(t)
230 IF P(t)>3 AND P(t)<7 THEN L
ET d(t)=d(t)+1
235 IF P(t)=0 OR P(t)>5 THEN L
ET a(t)=a(t)-1
240 IF P(t)=1 AND P(t)<5 THEN L
ET a(t)=a(t)+1
245 IF d(t)<0 THEN LET d(t)=d(t)
+200
246 IF d(t)>19 THEN LET d(t)=d(t)
-20
247 IF a(t)<0 THEN LET a(t)=a(t)
+32
248 IF a(t)>31 THEN LET a(t)=a(t)
-32
250 IF ATTR (d(t),a(t))=2 THEN
GO TO 500
253 IF ATTR (d(t),a(t))=5 THEN
GO TO 288
255 IF SCREEN (d(t),a(t))<>" "
THEN GO TO 290
256 IF t>4 THEN GO TO 262
260 PRINT AT d(t),a(t); INK 4; C
HRS (P(t)+144)
261 GO TO 253
262 PRINT AT d(t),a(t); INK 5; C
HRS (P(t)+144)
263 IF rh=1 THEN GO TO 145
265 NEXT q
267 IF (P=1 THEN GO TO 950
270 GO SUB 600
275 GO TO 145
280 FOR l=1 TO 5
285 IF l=1 THEN GO TO 305
290 IF d(t)=d(t) AND a(t)=a(t)
THEN GO TO 310
295 NEXT
300 PRINT AT d(t),a(t); INK 2;
BRIGHT 1; FLASH 1; CHRS (P(t)+144)
310 PRUSE 20; FLASH 0; BRIGHT 0
315 PRINT AT d(t),a(t); " "
320 LET h(t)=10: LET h(t)=10
325 IF (5 THEN LET af=af-1
330 IF (4 THEN LET hf=hf-1
335 IF (3 THEN LET af=af-1
340 IF (2 THEN LET hf=hf-1
345 IF af=0 AND hf=0 THEN GO TO
280
350 IF af=0 THEN GO TO 800
355 IF hf=0 THEN GO TO 625
360 GO TO 500
365 PRINT AT d(t),a(t); " "
370 LET d(t)=INT (RND*20): LET
a(t)=INT (RND*32): LET P(t)=INT
(RND*8)
372 LET rh=1
375 GO TO 250
380 IF #3(1)<>"t" OR CODE #3(2)
<48 OR CODE #3(2)>55 THEN GO TO
178
401 IF ABS (P(t)-URL #3(2))=4 T
HEN GO TO 178
402 LET (P=0
403 IF LEN #3=2 THEN GO TO 485

```

# ANIROG

# SOFTWARE

## XENO II

An EXPANDED screen presentation with superb action packed space thriller action every in machine ends with four action packed stages. To destroy the power source of attack plasma bombing by the legions of the air, sentience and finally attack the power source protected by a force field, continuous bombardment by guardians and attacking by wild whirling suicidal spaceships. Truly a game for all eras.

JS VIC 20 16K £7.90

## CAVERN FIGHTER

A M.C. version of SCRAMBLE. Launches bombs, continuous scoring and sound effects give all the thrills of arcade game. Pilot your space ship through the tortuous tunnels and caverns destroying enemy missile launchers and caverns and airborne fire-sancers. Four ships to complete mission. 10 skill levels.

KB/JS VIC 20 Unexp £5.95

## CRAWLER

A M.C. version of Centipede. Moving spiders mushroom laying traps and multi-directional level makes this game fast and fun with 10 skill levels.

JS VIC 20 Unexp £5.95

## PHARAOH'S TOMB

Once you enter the only way out is with the aid of a key which unlocks the mystery of the Pharaoh's Tomb. Beware of the mantraps the ancient Egyptians so painstakingly built. One false move and you will meet the same fate as before. Other tomb robbers over thousands of years. A multi screen big graphical adventure with M.C. movements.

KB VIC 20 16K £5.95

## SEVEN PROGRAMS (VOL 1)

Four games for the whole family. Board game Othello plus Bomber, Salam Bounce, Lunar Docker, Memory, and Snake.

KB VIC 20 Unexp £5.95

## SEVEN PROGRAMS (VOL 2)

Five more games for the family. Grand Adventure, Gob's Gold, plus Dare Devil, Ghosts, Grand Prix Breakout, Cobra and Mine field.

KB VIC 20 Unexp £5.95



## KRAZY KONG

An EXPANDED screen large graphics, rolloff barrels, hammer, fireballs, licks, handbags and premisses as you try to rescue the damsel Kong in the fourth screen. Uses all 21K of your expanded Vic for this 100% M.C. thriller. Complete with high score table.

KB/JS VIC 20 16K £7.90

## SLAP DAB

An exciting game based on the old game PAINTER which combines fast action with strategy. Grant insects hiding under the old paint surface are released by your paint brush. You require fast action and quick thinking to outwit them and finish the paint. The game is 100 percent machine code and HI-RES graphics also includes HI score and running score with brilliant sound effects.

KB/JS VIC 20 UNEXP £5.95

## DOTMAN

Ghosts chase you as you try to eat the dots and collect points. You can turn the tables on them by eating the pills. Don't forget the ghosts have been given intelligence and will try to corner you. This feature makes Dotman exciting and challenging. All M.C. game complete with running and highest scores and infinite.

JS/KB VIC 20 Unexp £5.95

## ZOK'S KINGDOM

Your starfighter badly damaged in a meteor storm is forced to crash land on the planet ruled by ZOK. A time space generated image of Dracula. You are challenged to a battle of wits and endurance as the battle for a royal status in earnest in this big multi screen graphical adventure in hi res graphics and M.C. move.

KB/JS VIC 20 16K £5.95

## GALACTIC ABDUCTORS

A stunning action packed game which uses all of your TV screen for the superb large animated graphics. Giant Space Hawks whirl and weave in intricate patterns as they drop their deadly homing mines which will destroy your base on contact. While you are busy defending yourself the Hawks will feed on your hapless population retaining only their skulls. All M.C. game complete with high score table that will blow your mind with its graphics and sound effects.

JS VIC 20 16K £7.90

## FROGRUN

Popular arcade game. All machine code with brilliant colour graphics and sound effects. Enemies include snakes, crocodiles, lady frogs, turtles, cars, torries and logs.

KB/JS VIC 20 Unexp £5.95  
KB/JS SPECTRUM 16K+16K £4.95  
KB/JS COMMODORE 64 £5.95

## DRACULA

Count Dracula is asleep somewhere in his castle. He rises at midnight and you must find him and drive a stake through his heart before he rises. A multi screen graphic adventure.

KB VIC 20 3K £5.95

## TINY TOT'S SEVEN

Super games pack for younger children with bright colour graphics and sound effects. Everybody's favourite Simon plus Super Snap, O's and X's, Word Jumble, Bomber, Duck Shoot and Mad Drivers.

KB SPECTRUM 16K 48K £4.95  
KB VIC 20 Unexp £5.95

## 3D TIME TREK

At its best game for the VIC. Although badly wounded you are determined to seek and destroy the marauding space pirates who have now dispersed around the galaxy in search of booty prey. A brilliant Star Trek game with a difference. Spectacular 3D graphics and hi res arcade action.

JS VIC 20 16K £5.95  
KB COMMODORE 64 £5.95

## SOFTWARE WRITERS

We are looking for top class writers to join our growing software team. If you have written a quality game for VIC 20, SPECTRUM, DRAGON 32, ORIC 1 or COMMODORE 64 then contact us. We pay top royalties for accepted programmes.



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ANIROG SOFTWARE  
26 BALCOMBE GARDENS  
HORLEY SURREY

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```

404 LET IP=3
405 IF IP=1 THEN URL=3(2)
410 IF IP=2 THEN GO TO 425
415 PRINT AT d(t),a(t); INK 4;C
HR$(P(t)+144)
416 IF IP=1 THEN GO TO 210
418 IF IP=1 THEN GO TO 950
419 GO SUB 500
420 GO TO 145
425 PRINT AT d(t),a(t); INK 6;C
HR$(P(t)+144)
426 IF IP=1 THEN GO TO 210
428 IF IP=1 THEN GO TO 950
429 GO SUB 500
430 GO TO 145
500 LET h(t)=10: REM hit rock
505 PRINT AT d(t),a(t); INK 2;
BRIGHT 1; FLASH 1;CHR$(P(t)+144)

```

```

510 PRUSE 20: FLASH 0; BRIGHT 0
515 PRINT AT d(t),a(t);
516 FOR z=1 TO 6
517 IF d(t)=e(z) AND a(t)=f(z)
THEN GO TO 520
518 NEXT z
520 GO SUB 700
525 GO TO 325
530 LET z=INT(RND*5+1)
535 PRINT AT e(z),f(z); " "
540 LET n=INT(RND*3-1); LET o=
INT(RND*3-1)
545 IF ATTR(e(z)+n,f(z)+o)=2 T
HEN GO TO 610
547 IF ATTR(e(z)+n,f(z)+o)=5 T
HEN GO TO 610
550 IF e(z)+n<0 OR e(z)+n>19 TH
EN GO TO 700
552 IF f(z)+o<0 OR f(z)+o>31 TH
EN GO TO 700
560 LET e(z)=e(z)+n: LET f(z)=f
(z)+o
564 IF SCREEN$(e(z),f(z))<>" "
THEN GO TO 645
605 PRINT AT e(z),f(z); INK 2;"
I"

```

```

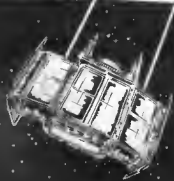
641 RETURN
645 FOR g=1 TO B
655 IF h(g)>9 THEN GO TO 665
660 IF d(g)=e(z) AND a(g)=f(z)
THEN GO TO 670
665 NEXT g
670 PRINT AT d(g),a(g); INK 2;
BRIGHT 1; FLASH 1;CHR$(P(g)+144)
671 PRUSE 20: FLASH 0; BRIGHT 0
672 PRINT AT e(z),f(z);
675 LET h(g)=10
680 IF g<5 THEN LET a(a)=f-1
681 IF g>4 THEN LET h(h)=f-1
682 IF a(a)=0 AND h(h)=0 THEN GO TO
690
683 IF h(h)=0 THEN GO TO 825
690 IF a(a)=0 THEN GO TO 800
700 LET e(z)=INT(RND*15+1): LE
T f(z)=INT(RND*30+1)
710 GO TO 610
800 LET k$="An earth fleet win"
810 GO TO 875
825 LET k$="An alien win"
840 GO TO 875
850 LET k$="A draw, both fleets
destroyed"
870 PRINT AT 20,0; INK 5;k$. IN
K 7;" Another game? (y or n)"
880 IF INKEY$="n" THEN GO TO 880
885 IF INKEY$="y" THEN RUN 1
890 IF INKEY$="n" THEN PRINT US
A 0
891 GO TO 880
950 PRINT AT d(t),a(t); INK 1;

```

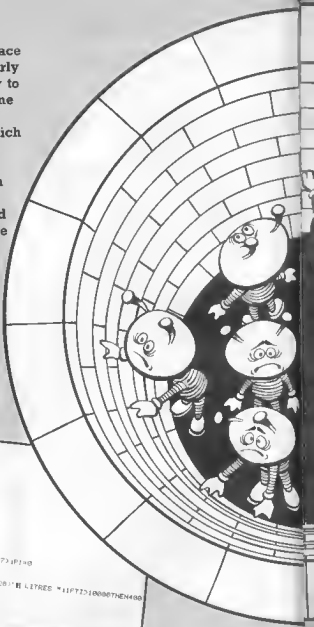
```

BRIGHT 0;CHR$(P(t)+144)
952 LET IP=0: LET b=INT(RND*6+
2)
955 IF f(d)=5 THEN LET b=10
960 LET f(d)=1: LET fa=a(t)
965 FOR h=1 TO 3
970 IF P(t)<3 THEN LET fd=fd-1
975 IF P(t)>3 AND P(t)<7 THEN L
ET fd=fd+1
980 IF f(d)>1 AND P(t)<5 THEN L
ET fa=fa+1
985 IF P(t)=0 OR P(t)>5 THEN LE
T fa=fa-1
990 IF fd<0 OR fd>19 THEN GO TO
145
997 IF fa<0 OR fa>31 THEN GO TO
145
1000 IF ATTR(f(d),fa)=2 THEN GO T
O 1015
1011 IF ATTR(f(d),fa)=5 THEN GO T
O 1015
1015 IF SCREEN$(f(d),fa)<>" " THE
N GO TO 1020
1000 PRINT AT fd,fa; INK 2; BRIG
HT 1
1002 PRUSE 2
1005 PRINT AT fd,fa;" "
1010 NEXT h
1015 BRIGHT 0
1016 GO SUB 500
1017 GO TO 145
1020 FOR g=1 TO B
1025 IF d(g)=f(d) AND a(g)=fa THEN
GO TO 1035
1030 NEXT g
1035 PRINT AT d(g),a(g); INK 2;
BRIGHT 1;CHR$(P(g)+144)
1040 LET h(g)=INT(RND*3+1)
1045 IF h(g)>9 THEN PRINT AT fd,
fa; BRIGHT 0;" THEN PRINT AT fd,
fa; BRIGHT 0;"
1050 IF f(d)>3 AND h(g)<5 THEN L
ET f(d)=3
1055 IF h(g)>7 AND h(g)<10 THEN
LET a(g)=1
1060 IF h(g)>9 THEN GO TO 1070
1065 PRUSE 10
1068 LET i=8
1069 IF i>14 THEN LET i=4
1070 PRINT AT d(g),a(g); INK 1;
BRIGHT 0;CHR$(P(g)+144)
1075 GO TO 145
1076 IF g<5 THEN LET a(a)=f-1
1077 IF g>4 THEN LET h(h)=f-1
1078 IF a(a)=0 AND h(h)=0 THEN GO TO
1085
1085 IF a(a)=0 THEN GO TO 800
1090 GO SUB 500
1095 GO TO 145
1098 PRINT AT d(t),a(t); BRIGHT
1; INK 5;"I"
1100 PRUSE 10
1101 PRINT AT d(t),a(t); BRIGHT
1; INK 5;"I"
1105 LET h(t)=10 LET g=t GO TO
1170
1170 INK 7; PRINT AT 4,4;"
AT 5,4;"
AT 6,4;"
AT 7,7;"
AT 8,4;"
AT 11,9;"
AT 12,9;"
AT 13,9;"
AT 14,9;"
AT 15,9;"
AT 16,9;"
AT 17,9;"
AT 18,9;"
AT 19,10;"
PRUSE 200: INK 0; CLS: GO T

```



On the planet Weidoo the low gravity gives you great strength to move the portions of brick wall around. But you must watch out for your oxygen level, which is displayed at the bottom of the screen.

[illegible][illegible]



# FOX AND HOUND

BY A. C. EDWARDS

## RUNS ON A DRAGON IN 32K

It's a dog's life being a fox with hungry cubs to feed. You never know where the next meal is coming from. But it will most probably be a chicken from one of Farmer Brown's coops across the river! The trouble is that faithful Fido, the farmer's hound, has his kennel between the chicken coops, and as soon as those birds give a squeak he'll be wide awake and twice as mean. But Fido, like most hounds, is not as bright as your average fox. So you can fool him by laying a false trail and hope to lose him for a while as you sneak up on the tasty chickens. This game has no less than 10 difficulty levels which you set by choosing the number of dune available to your fox in which he stashes the punder. There are four options of "hound visibility" from always visible to always invisible. Full instructions are included in the listing.

### Variables

## Variables

U = your position in Screen memory

GG = hounds position in screen memory

SL = difficulty level

BB = block graphic for dog if searching

FF = block graphic for dog if following scent trail

HS = high score

SC = your score

NS = high scorers name

DL = option chosen (determines BB and FF)

A,X = loop counters

DM → log movement

MU - your movement

CE = then variable (-1) if fox has a chick

SE = flag variable (=1) until you steal first chicken

BS = holds string characters for the river

```

100 FOX AND HOUND BY K.L. WARDEN
200 LINES 32-32: 1-1
300 INPUT PROMPTS: "-new and found!"
400 PRINT#55 STR$(LN 32:214)
500 PRINT#161: "YOU, THE DOG MUST!" AS POSSIBLE: 1
600 PRINT#165: "FOR MANY CHILDREN!"
700 PRINT#225: "FROM THE FATHER'S CHILDREN MUST!"
800 PRINT#237: "WHICH IS SUPPLIED BY A HOUND!"
900 PRINT#239: "WITH A GOOD SENSE OF SMELL!"
1000 PRINT#231: "YOU MUST TALK TO YOUR CHICKENS TO-"
1100 PRINT#233: "ONE UP YOUR BONES BEFORE YOU!"
1200 PRINT#235: "CAN GET WHOTER CHILDREN BUT!"
1300 PRINT#236: "THE DOG IS ON YOUR SCENT!"
1400 PRINT#238: "PRESS PRESS TO CONTINUE!"
1500 PRINT#239: "PRESS LITTLE LUTWIG!"
1600 IF SINKY? THEN
1700 CLS: PRINT#183: "PUM (CHICK 150)"
1800 CLS: PRINT#235: "HOUND!" (CHICK 191)
1900 PRINT#167: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2200 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2400 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2500 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2600 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2700 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2800 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
2900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3200 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3400 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3500 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3600 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3700 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3800 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
3900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
4000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
4100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
4200 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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5100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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5300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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6000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
6100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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6300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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6900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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7200 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
7300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
7400 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
7500 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
7600 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
7700 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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7900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
8000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
8100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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8900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
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9100 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9200 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9300 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9400 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9500 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9600 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9700 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9800 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
9900 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)
10000 PRINT#165: "YOUR SCENT!" (PRINT#129 "HOUND", PRINT#167)

```

```

400 FOR I=1 TO 3
410 PRINT(1/22)+53; DOB(1)
420 NEXT
430 POKE 1442, 67 POKE 151
440 PRINT224, 818
450 FOR A=1 TO 25
460 B=INT(159)+1824 IF PEEK(159)=1 AND PEEK(159)=143
470 THEN 510
480 POKE 159, 179
490 NEXT
500 PRINT256, 1818, 1818
510 PRINT256, 1818, 1818
520 PRINT256, 1818, 1818
530 PRINT256, 1818, 1818
540 PRINT256, 1818, 1818
550 PRINT256, 1818, 1818
560 PRINT256, 1818, 1818
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670 PRINT256, 1818, 1818
680 PRINT256, 1818, 1818
690 PRINT256, 1818, 1818
700 PRINT256, 1818, 1818
710 PRINT256, 1818, 1818
720 PRINT256, 1818, 1818
730 PRINT256, 1818, 1818
740 PRINT256, 1818, 1818
750 PRINT256, 1818, 1818
760 PRINT256, 1818, 1818
770 PRINT256, 1818, 1818
780 PRINT256, 1818, 1818
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980 PRINT256, 1818, 1818
990 PRINT256, 1818, 1818

```

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300 FOR I=1 TO 25
310 PRINT(1/22)+53; DOB(1)
320 NEXT
330 POKE 1442, 67 POKE 151
340 PRINT224, 818
350 FOR A=1 TO 25
360 B=INT(159)+1824 IF PEEK(159)=1 AND PEEK(159)=143
370 THEN 510
380 POKE 159, 179
390 NEXT
400 PRINT256, 1818, 1818
410 PRINT256, 1818, 1818
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980 PRINT256, 1818, 1818
990 PRINT256, 1818, 1818

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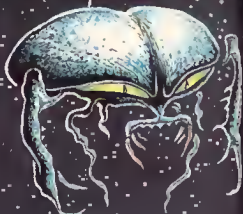
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n).



```

10 REM
20 REM *****
30 REM *****
40 REM *+ LANDERS *+
50 REM *+ By Dominic Cobley, *+
60 REM *+ Daniel Cobley, and *+
70 REM *+ Christopher Mitchell, *+
80 REM *****
90 REM *****
100 REM
110 ON ERROR GOTO 1500
120 VDU 23,224,255,255,255,255,255,255,255,255
130 VDU 23,225,1,7,15,27,63,97,99,240
140 VDU 23,226,128,224,240,216,252,134,196,15
150 L10=CHR$(225)+CHR$(226)
160 VDU 23,229,24,24,126,126,255,255,255,255
170 VDU 23,229,34,2,69,231,45,23,2,3
180 VDU 23,229,23,75,34,2,45,120,67,56
190 VDU 23,231,116,69,70,119,69,68,116,0
200 VDU 23,232,167,162,162,167,162,162,166,0
210 VDU 23,233,29,161,161,32,172,164,156,0
220 VDU 23,234,64,72,72,120,136,136,126,0
230 VDU 23,235,239,136,136,232,40,40,230,0
240 VDU 23,236,76,170,172,170,170,170,74,0
250 VDU 23,237,224,132,132,224,132,132,224,0
260 VDU 23,238,65,69,69,71,69,69,117,0
270 VDU 23,239,75,74,166,162,98,74,75,0
280 VDU 23,240,29,162,162,166,162,162,59,0
290 VDU 23,241,0,144,144,120,144,144,0,0
300 L10=CHR$(239)+CHR$(239)+CHR$(240)+CHR$(241)
310 S10=CHR$(235)+CHR$(236)+CHR$(237)
320 C10=CHR$(231)+CHR$(232)+CHR$(233)+CHR$(234)
330 S=CHR$(229)
340 N=CHR$(225)+CHR$(229)
350 G=CHR$(230)+CHR$(229)
360 O=STRING$(2,CHR$(224))
370 F10=CHR$(224)
380 S10=SHIP% MISS% VOL% =15 LD% =1 HIT% =0 EXTRA% =0
390 G% =0 SY% =0
400 MODE 7 PROCIO PRINT TAB(0,2); "Cobley software - Brighton Presents -"
410 FOR OX% =1 TO 12:PRINT TAB(7,0);CHR$(133);CHR$(141);"GALACTIC LANDERS" NEXT
420 FOR TX% =1 TO 13:PRINT TAB(16,1);" " NEXT
430 PRINT TAB(7,1);CHR$(134);STRING$(16," ") NEXT
440 PRINT TAB(1,28);CHR$(136);"Press the SPACE BAR to continue" AS=INKEY$(0);
IF = THEN 450 ELSE 440
450 CLS:PRINT TAB(4,3);CHR$(131);"*****" CHR$(132);"ICE LEFT RIGHT ***" CHR$(131);
"*****"
460 PRINT TAB(7,7);CHR$(130);"SPACE BAR" CHR$(129);"FIRE"
470 PRINT TAB(1,28);CHR$(136);"Press the SPACE BAR to continue" AS=INKEY$(0);
IF = THEN 480 ELSE 470
480 FFX1,3
490 FFX12,3
500 FFX18,3
510 MODE 2
520 F10=20:PROCSOUE
530 PROCPRINT(BX,120,0,5)
540 GCOL 0,6 MOVE 0,990 DRAW 1300,990
550 GCOL 0,6 MOVE 0,0 DRAW 1200,0
560 GCOL 0,3 MOVE 0,0 DRAW 0,990
570 MOVE 1200,0 DRAW 1200,990
580 MOVE 1274,0 DRAW 1274,990
590 F10 S% =1 TO 100 GCOL 0,RND(15)+50,RND(50)+100 NEXT
600 FOR SX% =1 TO 20 PROCPRINT(1210,80+32*SX,F10,5) NEXT
610 IF SNIP% THEN FOR SX% =1 TO SNIP% PROCPRINT(SX,120,60,0,5) NEXT
620 VDUA COLOUR3 PRINT TAB(10,30)/LP%:MISS% VDUS
630 TX=INKEY$(0)
640 FFX15,0
650 IF 1% =0 THEN BX% =75 IF BX% < 0 THEN BX% =50
660 IF 1% =0 THEN PROCPRINT(BX,120,0,5) GOTO 710
670 IF 1% =0 THEN BX% =77 IF BX% > 100 THEN BX% =100
680 IF 1% =0 THEN PROCPRINT(BX,120,0,5) GOTO 710
690 IF 1% =2 OR 1% =13 THEN F10=F10-1 PROCFIRE GOTO 720
700 PROCFIRE 5
710 GOTO 730
720 IF F10 < 1 THEN SHIP% =SHIP%-1 LD% =1 GOTO 720
730 IF HIT% =1 OR LD% =1 THEN 740 ELSE 760
740 S10=RND(50)+20 BYX% =50
750 HIT% =0 LD% =0
760 SOUND 17,VOL%,(1000-BYX%)/5,2
770 PROCPRINT(SX,SY,L10,0)
780 PROCPRINT(SX,SY,L10,0)
790 SY=SY+RND(175)/(100+SX/50)
800 SY=SY+RND(200)/100
810 IF SY > 250 THEN SY% =150
820 IF SY < 150 THEN SY% =150
830 IF SX < 20 THEN SX% =20
840 IF SX > 90 THEN SX% =90
850 PROCPRINT(SX,SY,L10,2)
860 SOUND 1,VOL%,(1000-SY%)/5,1
870 IF SY% =170 THEN 900
880 LD% =1 PROCPRINT(SX,SY,L10,0) PROCPRINT(SX,120,L10,2) SY% =120
890 IF BX% < 0 AND SX% > 130 THEN SHIP% =SHIP%-1 SY% =0 GOTO 920
900 FOR SX% =0 TO 150 SOUND 17,VOL% ,5,2 NEXT MISS% MISS% =1 IF MISS% THEN SHIP% =SHIP%-1 GOTO 920
910 PROCPRINT(SX,120,L10,0) VDUA COLOUR3 PRINT TAB(10,30)/LP%:MISS% VDUS GOTO
920
930 MISS% =0 FOR SX% =0 TO 250 SOUND 17,VOL% ,5,1 NEXT SOUND 0,VOL% ,22,12
940 FOR SX% =1 TO 20 GCOL 0,RND(7) MOVE SX% =75+RND(200),50+RND(150) DRAW SX% =27,90
950

```



# LANDERS

'Remember the mutant Landers from Defender, the big-daddy of all video games? Well, they are back — and twice as mean! They are still out to attack all human life wherever they find it! Move your laser base and shoot down the swerving landers as they swarm down towards the planet's surface.

The higher the lander is when you shoot it the more points you score. You lose energy each time you fire — but regain it if you manage to hit a lander.

If you run out of energy, crash into a lander, or let two alien craft land you'll lose a life. The game ends when you lose all three lives, and you get an extra life at 2,000 points.



BY DOMINIC COBLEY

**- RUNS ON A BBC B IN 16K**

|      |                                     |      |
|------|-------------------------------------|------|
| 100  | END                                 | 1900 |
| 170  | 3P X 17,0                           | 1800 |
| 100  | ENDPROC                             | 1010 |
| 1100 | DEFPROC SCORE                       | 1020 |
| 1200 | VCH = 1                             | 1030 |
| 1210 | COLOR = 1                           | 1040 |
| 1220 | PRINT#5 (0); SC; SC2                | 1050 |
| 230  | COJUK = 4                           | 1060 |
| 240  | PRINT#5 (2,0); ENH FUN;             | 1070 |
| 250  | VU = 5                              | 1080 |
| 260  | ENDPROC                             | 1090 |
| 270  | DEFPROC PRINTX(VS, VB, VC)          | 1100 |
| 300  | CO = 0.15% REVEXX, VS               | 1110 |
| 310  | PRINT VB                            | 1120 |
| 300  | ENDPROC                             | 1130 |
| 310  | DEFPROC PRSH                        | 1140 |
| 120  | SOUND 8, VOL, 5, 8                  | 1150 |
| 320  | SOUND 8 VOL, 22, 9                  | 1160 |
| 340  | PRINT#1 (SC, SYX, L15, 0)           | 1170 |
| 350  | PRINT#1 (SC, SYX, H, 1)             | 1180 |
| 360  | PRINT#1 (1)                         | 1190 |
| 370  | PRINT#1 (SC, SYX, 0, 0)             | 1200 |
| 380  | PRINT#1 (SC, SYX, 0, 1)             | 1210 |
| 390  | PRINT#1 (10)                        | 1220 |
| 400  | PRINT#1 (SC, SYX, 0, 0)             | 1230 |
| 410  | PRINT#1 (10)                        | 1240 |
| 420  | PRINT#1 (SC, SYX, STR\$(SC), 1, 6)  | 1250 |
| 430  | PRINT#1 (28)                        | 1260 |
| 440  | PRINT#1 (SC, SYX, 0, 0)             | 1270 |
| 450  | ENDPROC                             | 1280 |
| 460  | DEFPROC UN1 (3)                     | 1290 |
| 1470 | UNTIL TIME REPEAT UNTIL TIME>TXH+3X | 1300 |
| 1480 | FX 15, 0                            | 1310 |
| 490  | END                                 | 1320 |
| 500  | IF ENDP? THEN MODE = 7:PRINT        | 1330 |
| 510  | IF ENDP? THEN MODE = 7:PRINT        | 1340 |
| 520  | MODE = 7:PROC FOR 50%> 7:PRINT      | 1350 |
| 530  | MODE = 7:PRINT                      | 1360 |
| 540  | MODE = 7:PRINT                      | 1370 |
| 550  | MODE = 7:PRINT                      | 1380 |
| 560  | MODE = 7:PRINT                      | 1390 |
| 570  | IF 10 = 1 THEN 10                   | 1400 |
| 580  | FX 15, 0                            | 1410 |
| 590  | END                                 | 1420 |
| 600  | FX 15, 0                            | 1430 |
| 610  | END                                 | 1440 |
| 620  | DEFPROC VDU 23:EE2:0;0;0;1;ENH      | 1450 |





The tortuous twists and turns of this 3D maze will intrigue even the most jaded Pacman player! You'll find yourself within the walls of a graphically stunning maze — even more baffling than the one at Hampton Court. But before you start there are monsters stalking the corridors be warned — there are monsters stalking the corridors and deadly pits which must be avoided at all costs during your quest for the way out. To help you get out there is a map located somewhere in the curious corridors. Once you have found that all you have to do is avoid the lurking monsters and find ladders to help you deal with the pits! An added attraction are the transporter rooms, located behind a set of sliding doors which you'll find dotted around the maze. These transporters will help take you to different parts of the maze — but offer no real chance of escape! If you see a part of the maze floor the game ends. Ladders unfortunately cannot be transported — so you'll have to drop them if you want to enter a transporter room. Monsters in the maze are extremely intelligent beings and will follow you — the best tactic is to run away! If you suddenly vanish for no apparent reason a monster has leaped on you from behind!

The map is the key to your freedom. It is represented by a black square and is located in one of the many corridors. If you find it pick it up using the fire button on your joystick and then press "M" on the keyboard. You will see a plain view of the maze and the all-important transmit beam which will take you to freedom. This is marked by a cross. The map also shows your position and the direction you are facing. You must use the information to work out the best route out of the maze. There are four skill levels — if you manage to escape the first time round!

```
10 GRAPHICS 0:POKE 752,1:CLR:RESTORE:SETCOLOR 2,0,0:POSITION 13,11:?"SKILL LEVEL":INPUT LEV:IF LEV>4 THEN 10
20 POSITION 12,11:?"HANG ON!":
30 DIM M(15,15):DIM J(4):DIM K(4):DIM L(4):DIM X2(4):DIM Y2(4):DIM AS(1):DIM MS(10):DIM RS(4)
40 MS="" DLCT"X":RS="NESW":ST=1:LA=1:CH=1:LD=0:IN=10
50 FOR D=0 TO 15:READ I:M(D,C)=I:NEXT D:C=C+1:IF C=16 THEN 70
60 GOTO 50
70 FOR D=1 TO 4:READ A,B,C:J(D)=A:K(D)=B:L(D)=C:NEXT D
80 RA=INT(RND(0)*2+1):IF RA=1 THEN M(B,1)=7:M(14,6)=5:GOTO 100
90 M(B,1)=5:M(14,6)=7
100 B=B:GOSUB 130:B=5:GOSUB 130:B=5:GOSUB 130
110 B=4:FOR A=1 TO LEV*2+5:GOSUB 130:NEXT A
120 C=0:GOTO 150
130 X=INT(RND(0)*13+1):Y=INT(RND(0)*13+1):IF X<9 AND Y<4 OR M(X,Y)<2 THEN 130
135 IF M(X+1,Y)=4 OR M(X-1,Y)=4 OR M(X,Y+1)=4 OR M(X,Y-1)=4 THEN 130
140 M(X,Y)=B:RETURN
150 FOR A=1 TO LEV
160 X=INT(RND(0)*5+9):Y=INT(RND(0)*5+9):IF M(X,Y)<2 THEN 160
170 X2(A)=X:Y2(A)=Y:NEXT A
180 GRAPHICS 6:POKE 752,1:SETCOLOR 1,0,0:SETCOLOR 2,LEV*3,14:SETCOLOR 4,LEV*3,14
190 " LADDER MAZE BY F.B. JOHNSON"
200 X=1:Y=1:R=3:GOTO 270
210 X=X-F:U=Y-Y-F:V=V+D:R=0:POKE 77,0:POKE 764,255:IF TA=1 THEN X=X+U:Y=Y+V:TA=0
220 FOR A=1 TO R:READ U,V,W,Z,D,P:NEXT A
230 Q=42:S=0:B=25:H=0:F=0
240 Q=INT(0/1.445):G=INT(6/1.41):F=F+1
250 X=X+U:Y=Y+V:D=M(X,Y):IF D=1 OR D>3 THEN 330
310 D=M(X+W,Y+Z):ON D GOSUB 450,470,500,470,470,470,470,470
```



Movement is carried out entirely by the joystick. The fire button is used to open doors and pick up items.

The key to the Map is as follows: O = door; T = transporter; L = ladders; CIRCLE = a pit; @ = a monster.

The random number generator in line 1440 determines whether or not the monsters move or not at the moment it is set to a 40% chance. But it can be lowered or increased to make the game more or less challenging. No matter what skill level you will always be able to reach a pen of ladders or a transporter when first starting.

```
320 D=M(X+0,Y+P):ON D GOSUB 530,560,590,560,560,560,560,560:GOTO 290
330 ON D GOSUB 620,1,650,670,690,1,720,730,740,770:IF D>3 THEN 310
340 SETCOLOR 0,LEV*3,0:SETCOLOR 4,LEV*3,14:RESTORE 970
345 X1=X-F+U:Y1=Y-F+V:D1=M(X1,Y1):D2=M(X1+U,Y1+V):GOSUB 1600
350 N=STICK(0):IF CH=1 THEN 360
355 IF PEEK(764)=37 THEN 1100
360 IF N=13 THEN R=J(R)
365 IF N=11 THEN R=K(R)
370 IF N=7 THEN R=L(R):IF N=14 AND F=1 AND D=1 THEN 350
375 IF N=14 AND F=1 AND D=1 THEN 350
380 IF N=14 AND F=1 AND D=3 AND DR=0 THEN N=350
385 IF D1=4 AND LA=0 THEN LD=1
390 IF N=14 AND F=1 THEN TA=1
400 IF D=3 AND F=1 AND DR=0 AND STRIB(0)=0 THEN GOSUB 430
405 IF N=14 AND DR=1 THEN TA=1
410 TI=TI+1:IF N=15 THEN 350
420 GRAPHICS 6+16:SETCOLOR 0,LEV*3,14:SET
```

TDCOLOR 4,LEV\*3,14:GOTO 260

430 FOR DR=00 TO 120 STEP 5:COLOR 1:PLOT  
T DR,16:DRAWTO DR,95:PLOT 160-DR,16:DRAW  
TO 160-OP,95

440 SOUND 0,66,12,4:NEXT DP:SOUND 0,0,0,  
0:DR=1:RETURN

450 COLOR 1:PLOT 159-S,H:DRAWTO 159-(S+Q  
,H+G:DRAWTO 159-(S+Q),95-(H+G):DRAWTO  
159-S,95-H:RETURN

470 COLOR 1:PLOT 159-S,H+G:DRAWTO 159-(S  
+Q),H+G:DRAWTO 159-(S+Q),95-(H+G):DRAWTO  
159-S,95-(H+G):RETURN

500 COLOR 1:PLOT 159-(S+(Q/3)),95-H-(G/3  
) :DRAWTO 159-(S+(Q/3)),H+G:DRAWTO 159-(S  
+Q-(Q/3)),H+(G+1.4)

515 DRAWTO 159-(S+Q-(Q/3)),95-H-(G+0.8):  
PLOT 159-(S+(Q/2)),H+G+1.3

520 DRAWTO 159-(S+(Q/2)),95-H-(G/2):GOSUB  
B 450:RETURN

530 COLOR 1:PLOT 6,H:DRAWTO S+Q,H+G:DRAW  
TO S+Q,95-(H+G):DRAWTO S,95-H

540 S=Q+G:H=H+G:RETURN

560 COLOR 1:PLOT S,H+G:DRAWTO S+Q,H+G:DR  
AWTO S+Q,95-(H+G):DRAWTO S,95-(H+G)

570 GOSUB 540:RETURN

590 COLOR 1:PLOT S+(Q/3),95-H-(G/3):DRAW  
TO S+(Q/3),H+G:DRAWTO S+Q-(Q/3),H+(G+1.4  
)

600 DRAWTO S+Q-(Q/3),95-H-(G+0.8):PLOT S  
+(Q/2),H+(G+1.3):DRAWTO S+(Q/2),95-H-(G/2):  
GOSUB 530:RETURN

620 COLOR 1:PLOT S,H:DRAWTO 159-S,H:DRAW  
TO 159-S,95-H:DRAWTO S,95-H:DRAWTO S,H:R  
ETURN

630 COLOR 1:PLOT S+Q,95-H:DRAWTO S+Q,H+G  
,DRAWTO 159-(S+Q),H+G:DRAWTO 159-(S+Q),9  
5-H

660 PLOT 80,H+G:DRAWTO 80,95-H:GOSUB 620  
:RETURN

670 COLOR 1:PLOT S+Q,95-H:DRAWTO S+Q,95-  
(H+G):DRAWTO 159-(S+Q),95-(H+G):DRAWTO 1  
59-(S+Q),95-H

680 PLOT S,95-H:DRAWTO 159-S,95-H:RETURN

690 COLOR LA:PLOT S+(Q+1.2),95-(H+G/3):D  
RAWTO 159-(S+(Q+1.2)),95-(H+G/3):PLOT S+  
(Q+1.2),95-(H+(G/1.4))

700 DRAWTO 159-(S+(Q+1.2)),95-(H+(G/1.4  
) ) :FOR A=S+(Q+1.2) TO 159-(S+(Q+1.2)) STEP  
P (159-(S+(Q+1.2))-(S+(Q+1.2)))/5

710 PLOT A,95-(H+G/3):DRAWTO A,95-(H+(G/  
1.4)) :NEXT A:RETURN

720 COLOR 1:PLOT S+Q+40,H+G+20:DRAWTO 12  
0-(S+Q),H+G+20:PLOT 80,H+G+20:DRAWTO 80,  
75-(H+G):GOSUB 620:RETURN

730 COLOR CH:PLOT 80,95-(H+G/3):RETURN

740 COLOR 1:FOR A=S+(Q+2.1) TO 159-(S+(Q  
+2.1)) STEP 1:PLOT A,H+(G+2):DRAWTO A,95  
-(H+(G+2)):NEXT A

745 IF F>2 THEN RETURN

750 COLOR 0:PLOT S+(Q+2.3),H+(G+2.3):PLD  
T 159-(S+(Q+2.3)),H+(G+2.3)

760 PLOT S+(Q+2.4),H+(G+2.6):DRAWTO 159-  
(S+(Q+2.4)),H+(G+2.6):RETURN

#### COMMENTS ON LISTING

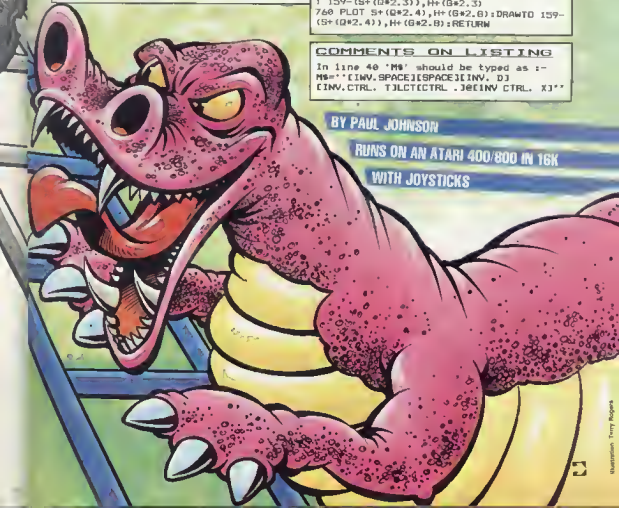
In line 40 "M" should be typed as :-

MS="([INV.SPACE][SPACE][INV.DJ  
[INV.CTRL. T]JLCT[CTRL. J]e[INV.CTRL. X])"

BY PAUL JOHNSON

RUNS ON AN ATARI 400/800 IN 16K

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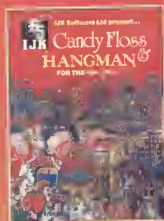


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```

770 COLOR 1:PLOT S,95-H:DRAWTO 159-(S+Q)
,95-(H+Q):PLOT S+Q,95-(H+Q):DRAWTO 159-S
,95-H:RETURN
800 DATA 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
810 DATA 1,2,2,2,2,3,2,1,2,1,2,2,2,2,2,1
820 DATA 1,2,1,2,1,1,2,1,3,1,2,1,2,1,2,1
830 DATA 1,2,1,2,3,2,2,2,2,2,2,3,2,1,3,1
840 DATA 1,2,2,2,1,3,1,3,1,2,1,1,2,2,2,1
850 DATA 1,3,1,1,1,2,1,2,1,3,1,1,1,1,1,1
860 DATA 1,2,3,2,2,1,2,2,2,2,3,2,3,2,1,1
870 DATA 1,3,1,1,1,1,3,1,1,1,1,1,1,1,1,1
880 DATA 1,2,2,2,2,3,2,2,2,2,3,2,2,2,2,1
890 DATA 1,3,1,1,3,1,3,1,3,1,1,3,1,3,1,1
900 DATA 1,2,3,2,2,1,2,2,2,1,2,2,1,2,1,1
910 DATA 1,1,1,3,1,1,1,1,2,1,2,1,2,1,2,1
920 DATA 1,2,3,2,3,2,2,2,3,2,2,3,2,2,2,1
930 DATA 1,3,1,2,1,2,1,2,1,2,1,1,1,2,1,1
940 DATA 1,7,1,2,2,2,3,2,2,3,2,2,2,3,10,
1
950 DATA 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,1
960 DATA 3,4,2,4,1,3,1,2,4,3,1
970 DATA 0,-1,1,0,-1,0,1,0,0,1,0,-1,0,1,
-1,0,1,0,-1,0,0,-1,0,1
1000 IF LA=0 THEN RETURN
1010 N=STICK(0):IF STRIG(0)=0 THEN 1040
1020 IF N<>15 THEN RETURN
1030 GOTO 1010
1040 X=INT(RND(0)*12+2):Y=INT(RND(0)*12+
2):R=INT(RND(0)*4+1)
1050 IF M(X,Y)=2 THEN 1060
1055 GOTO 1040
1060 GRAPHICS 6+16:SETCOLOR 0,0,0
1070 FOR A=30 TO 0 STEP -2:SOUND 0,A,B,1
5:SETCOLOR 4,A,14:FOR T=1 TO 4:NEXT T:SE
TCOLOR 4,0,0:SET A:SOUND 0,0,0,0
1080 GOTO 270
1100 POKE 764,255:IF CH=1 THEN RETURN
1105 GRAPHICS 0:SETCOLOR 2,7,0:SETCOLOR
4,7,0:SETCOLOR 1,7,0:POKE 752,1:C=0
1110 FOR A=0 TO 15:N=NAN(A,C):TI=TI+1
1120 A=M*(MA,MA):POSITION A+11,C+4:PRIN
T A:NEXT A:A=R*(R,R)
1130 C=C+1:IF C<16 THEN 1110
1140 SETCOLOR 1,7,B:FOR A=1 TO 40:POSITI
ON X1+11,Y1+4:PRINT A:FOR T=1 TO 20:NEX
T T:POSITION X1+11,Y1+4:PRINT " "
1150 FOR T=1 TO 20:TI=TI+1:NEXT T
1160 NEXT A:GRAPHICS 6+16:SETCOLOR 0,7,0
:SETCOLOR 4,7,0:GOTO 260
1170 T=STRIG(0)
1175 IF T=0 THEN 1200
1180 N=STICK(0)
1185 IF CH=1 THEN 1190
1187 IF PEEK(764)=37 THEN 1100
1190 IF N<>15 THEN RETURN
1195 GOTO 1170
1200 Q=29:G=17:G=0:H=0
1210 LA=0:M(X1+U,Y1+V)=2:GOSUB 690:RETUR
N
1220 IF LD=1 THEN RETURN
1230 FOR T=75 TO 35 STEP -1:SOUND 0,T,10
,15:COLOR 0:PLOT 0,T:DRAWTO 159,T
1240 COLOR 1:PLOT 0,T-1:DRAWTO 159,T-1:N
EXT T:SOUND 0,0,0,0
1250 GOTO 2000
1260 IF LA=1 THEN RETURN
1270 IF STRIG(0)=0 THEN 1310
1280 N=STICK(0)
1290 IF N<>15 THEN RETURN
1300 GOTO 1270
1310 FOR A=94 TO 82 STEP -4:COLOR 1:PLOT
75,A:DRAWTO 75,A-4:DRAWTO 85,A-4:DRAWTO
85,A:SOUND 0,A+2,10,15:NEXT A
1320 SOUND 0,0,0,0:LD=1:RETURN

```

```

1330 IF M(X1+U,Y1+V)<>2 OR LA=1 THEN RET
URN
1340 IF STRIG(0)=0 THEN 1380
1345 IF CH=1 THEN 1350
1347 IF PEEK(764)=37 THEN 1100
1350 N=STICK(0)
1360 IF N<>15 THEN RETURN
1370 GOTO 1340
1380 LA=1:M(X1+U,Y1+V)=5:Q=29:G=17:S=0:H
=0:GOSUB 690:GOTO 1170
1390 IF STRIG(0)=0 THEN FOR T=1 TO 20:NE
XT T:GOTO 1430
1400 N=STICK(0)
1410 IF N<>15 THEN RETURN
1420 GOTO 1390
1430 M(X1+U,Y1+V)=2:CH=0:G=17:H=0:GOSUB
730:RETURN
1435 FOR B=1 TO LEV:TI=TI+1:FX=0:FY=0:IF
X1=X2(B) AND Y1=Y2(B) THEN 2060
1440 RA=INT(RND(0)*10+1):IF RA<5 THEN RE
TURN
1450 X3=X1-X2(B):Y3=Y1-Y2(B):MX=SGN(X3):
MY=SGN(Y3)
1460 DM=M(X2(B)+MX,Y2(B)):IF DM=2 THEN 1
500
1470 IF DM>2 THEN DM=M(X2(B)+(MX*2),Y2(B
))
1480 IF DM=2 THEN MX=MX*2:GOTO 1500
1490 FX=1:MX=0
1500 DM=M(X2(B),Y2(B)+MY):IF DM=2 THEN 1
540
1510 IF DM>2 THEN DM=M(X2(B),Y2(B)+(MY*2
))
1520 IF DM=2 THEN MY=MY*2:GOTO 1540
1530 FY=1:MY=0
1540 IF FX+FY=2 THEN 1570
1550 IF FX+FY=0 THEN 1580
1560 M(X2(B)+MX,Y2(B)+MY)=9:M(X2(B),Y2(B
))=2:X2(B)=X2(B)+MX:Y2(B)=Y2(B)+MY
1570 NEXT B:RETURN
1580 RA=INT(RND(0)*2+1):IF RA=1 THEN MX=
0:GOTO 1560
1590 NY=0:GOTO 1560
1600 IF D1=4 THEN GOSUB 1220
1605 LD=0
1610 IF D1=7 THEN GOSUB 1000
1620 IF D2=4 THEN GOSUB 1260
1630 IF D2=5 THEN GOSUB 1170
1640 IF D2=8 THEN GOSUB 1390
1650 GOSUB 1330
1660 GOSUB 1435
1670 IF D1=10 THEN 1690
1680 RETURN
1690 FOR T=80 TO 0 STEP -1:SETCOLOR 4,T,
14:SOUND 0,T,10,10:NEXT T
1700 GRAPHICS 0:POKE 752,1:SETCOLOR 2,12
,4:SETCOLOR 4,12,4:POSITION 9,12:PRINT "
WELL DONE YOU'RE OUT"
1710 FOR T=1 TO 100:NEXT T:GOTO 2000
2000 GRAPHICS 0:POKE 752,1:SETCOLOR 1,0,
0:SETCOLOR 2,11,8:SETCOLOR 4,11,8:IF NOK
>1 THEN 2020
2010 POSITION 5,4:?"YOU ARE NOW A MONST
ERS DINNER"
2020 POSITION 7,10:?"YOU WERE IN THE NA
ZE FOR..."
2030 POSITION 16,15:?"INT(TI/8.6):" SEC
"5"
2040 POSITION 7,20:?"PRESS BUTTON FOR A
MOTHER GO":IF STRIG(0)=0 THEN RUN
2050 GOTO 2040
2060 FOR T=1 TO 100:SOUND 0,T,2,15:POKE
559,43:SETCOLOR 4,T,14:NEXT T:SOUND 0,0,
0,0:NO=1:GOTO 2000

```

BY PHILIP HINTON

RUNS ON A TEXAS TI 99/4a IN 5K

Watch out — there's a snake in the grass! And this one is after all those juicy windfalls from the fruit trees in your orchard.

Take charge of this slippery customer as he wends his way

# MUNCHER

around the rocks and trees, picking up tasty fruits on the way. There are four kinds to munch — apples, oranges, bananas and cherries. When one orchard is cleared of fruits your snake moves onto another more difficult screen. The rocks and trees in each orchard must be avoided. If the snake hits one he loses one of his ten lives. Around the edge of the orchard is a hedge which must be avoided. If the snake hits it the game is over. How many forbidden fruits can you collect?

```
10 GOSUB 2170
20 TREES=20
30 NROCKS=10
40 NFRUIT=10
50 CALL SCREEN(4)
60 Q=32
70 SC=0
80 LIV=10
90 SHEET=1
100 RANDOMIZE
110 J=0
120 F=1
125 REM CHOOSE A FRUIT
130 FR=INT(((4)-RND)+1)*8+121
135 REM DEFINE GRAPHICS
140 CALL CHAR(104,"FF7F3F1F1F337
3FF")
150 CALL CHAR(105,"FFFFFF9F9FFE7C
381")
160 CALL CHAR(106,"81C3E7FF9F9FF
FFF")
```

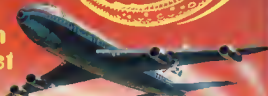
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# FROM RUSSIA WITH LUCK

by Jean  
Frost



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Signature

Name

Address

Send to **Jebberwocky Software**, 610 Washwood Heath Road,  
Birmingham B8 2HG.

**JABBERWOCKY**

```

560 CALL HCHAR(23,14,FP,NFRUI)
565 PEM PLACE TREE,POCKS AND F
FRUITS ON THE SCREEN
570 FOR VT=1 TO TREES
580 AD=INT((18)*RND)+4
590 BD=INT((24)*RND)+6
600 CALL HCHAR(AD,BD,96)
610 NEXT VT
620 FOR RDC=1 TO NPOCKS
630 ROCK=INT((18)*RND)+4
640 POCK2=INT((24)*RND)+6
650 CALL GCHAR(POCK,POCK2,RD)
660 IF RD>32 THEN 630
670 CALL HCHAR(POCK,POCK2,120)
680 NEXT RDC
690 FOR K=1 TO NFRUI
700 E=INT((18)*RND)+4
710 P=INT((24)*RND)+6
720 CALL GCHAR(E,R,RFL)
730 IF PFL<>32 THEN 700
740 CALL HCHAR(E,R,FP)
750 NEXT K
755 PEM MAIN LOOP
760 CALL HCHAR(A,B,CHAR)
770 CALL HCHAR(A-F,B-J,112)
780 IF O<32 THEN 1230
790 CALL KEY(O,X,Y)
800 IF Y=0 THEN 1170
810 IF X=83 THEN 850
820 IF X=68 THEN 930
830 IF X=69 THEN 1110
840 IF X=88 THEN 1000 ELSE 760
850 B=B-1
860 F=0
870 J=-1
880 P=-1
890 D=0
900 CHAR=104
910 CALL GCHAR A,B,C
920 GOTO 760
930 B=B+1
940 F=0
950 J=1
960 P=1
970 D=0
980 CHAR=107
990 CALL GCHAR A,B,C
1000 GOTO 760
1010 A=A-1
1020 F=-1
1030 J=0
1040 P=0
1050 D=-1
1060 CHAR=106
1070 CALL GCHAR A,B,C
1080 GOTO 760
1090 A=A+1
1100 F=1

```

```

1110 P=1
1120 P=1
1130 D=1
1140 CHAR=105
1150 CALL GCHAR A-B,C
1160 GOTO 760
1170 B=B+P
1180 A=A+D
1190 CALL GCHAR(A,B,C)
1200 IF O<32 THEN 1110 ELSE 760
1210 CALL HCHAR(A-B,CHAR)
1220 CALL HCHAR(A-F,B-J,112)
1230 IF O=96)+10=112)+(O=112) TH
EN 1260
1240 IF (O=123)+(O=137)+(O=145)+
(O=153) THEN 1560
1250 IF O=97 THEN 2660
1255 PEM CRASH ROUTINE
1260 FOR DL=500 TO 480 STEP -1
1270 CALL SOUND(100,100,2,18,0,
30,500,30,-8,0)
1280 FOR NU=1 TO 10
1310 CALL COLDP(10,X+1)
1320 CALL COLOR(10,X+1)
1330 NEXT NU
1340 LIV=LIV-1
1350 GOTO 1760
1355 PEM ATE FRUIT
1360 CALL SOUND(500,500,1,800,5,
730,10)
1370 GC=GC+100
1380 FRUI=FRUIT+1
1390 O=32
1400 CALL HCHAR(23,14,FP,NFRUI,F
RUI+2)
1410 CALL HCHAR(23,14,FP,NFRUI,F
RUI+1)
1420 AT=STR$(SC)
1430 C=2
1440 RT=9
1450 GOSUB 2020
1460 IF FRUI=NFRUI+1 THEN 1470 E
LSE 760
1465 PEM GARDEN CLEARED OF FRU
ITS
1470 CALL SOUND(100,110,0,220,0,
330,0)
1480 CALL SOUND(100,440,0,550,0,
660,0)
1490 CALL SOUND(100,800,0,880,0,
950,0)
1500 CALL SOUND(40,1100,0,1500,0,
0,1200,0)
1510 AT=CONCATULATIONC
1520 C=10
1530 RT=7
1540 GOTO 2020

```

```

1550 AS= "GARDEN" : AS="SHEET"
COMPLETED"
1560 Z=11
1570 PT=6
1580 GOSUB 2020
1590 AS="BONUS" :%ITR%:SHEET*LIV
:20"
1600 Z=12
1610 PT=10
1620 GOSUB 2020
1630 SC=SC+(SHEET*LIV*100)
1640 AS=STR$(SC)
1650 Z=2
1660 RT=9
1670 GOSUB 2020
1680 SHEET=SHEET+1
1690 IF NFRUI=16 THEN 1710
1700 NFRUI=9+SHEET
1710 TREES=TREES+1
1720 NPOCKS=NPOCKS+1
1730 FOR WAIT=1 TO 300
1740 NEXT WAIT
1750 GOTO 100
1755 REM LOST LIFE
1760 CALL HCHAR(2,16,32,LIV+2)
1770 IF LIV<1 THEN 1860
1780 CALL HCHAR(2,16,108,LIV)
1790 D=0
1800 P=0
1810 Q=32
1820 CALL HCHAR(A,B,CHAR)
1830 CALL HCHAR(A-F,B-J,112)
1840 CALL KEY(0,K,YU)
1850 IF YU=0 THEN 1840 ELSE 760
1855 REM GAME OVER
1860 FOR SOUND=150 TO 110 STEP -1
1870 CALL SOUND(100,SOUND,0)
1880 NEXT SOUND
1890 AS="GAME OVER"
1900 Z=10
1910 PT=10
1920 GOSUB 2020
1930 AS="SCORE:" :%ITR$(SC)
1940 Z=11
1950 PT=11
1960 GOSUB 2020
1970 PRINT "ANOTHER GAME?"
1980 CALL KEY(0,K,Y)
1990 IF K=89 THEN 20
2000 IF K=78 THEN 2010 ELSE 1980
2010 END
2020 FOR KL=1 TO LEN(AS)
2030 CALL HCHAR(2,PT+KL,ASC(CEG%
:AS*KL,1))
2040 NEXT KL
2050 RETURN
2055 REM PAN INTO HEDGE
2060 FOR VOLU=30 TO 0 STEP -1
2070 CALL SOUND(-250,-2,VOLU)
2080 NEXT VOLU
2090 FOR VOLU=0 TO 30
2100 CALL SOUND(-500,-2,VOLU)

```

```

2110 NEXT VOLU
2120 AS="YOU WENT OUT OF THE GAP
DEN"
2130 Z=9
2140 RT=3
2150 GOSUB 2020
2160 GOTO 1890
2165 REM INSTRUCTIONS
2170 CALL CLEAR
2180 CALL SCREEN(16)
2190 PRINT "MUNCHER"
2200 PRINT "THE OBJECT OF THE
GAME IS:" TO CONTROL A SNAKE WHI
CH IS:"MOVING AROUND A GARDEN.
2210 PRINT "THE SNAKE IS EATING
ALL THE:"TIME.
2220 PRINT "YOU MUST MAKE THE
SNAKE:"FUN INTO THE FRUIT:WHIC
H:"HAVE FALLEN ONTO THE GROUND.
2230 PRINT "BUT BEWARE, THERE ARE
TREES:"IN THE GARDEN AND ROCK
:"LIES ABOUT.
2240 PRINT "IF YOUR SNAKE RUNS I
NTO:"EITHER OF THESE, ANOTHER
2250 PRINT "TAKES ITS PLACE UNTI
L ALL:"TEN SNAKES HAVE BEEN UCE
D.
2260 PRINT "IF YOU EAT ALL THE
FRUIT:"IN A GARDEN YOU ARE MO
VED:"TO ANOTHER ONE.
2270 GOSUB 2350
2280 CALL CLEAR
2290 PRINT "AT THE END OF EACH G
ARDEN:"YOU ARE GIVEN A BONUS WH
ICH:"IS ADDED TO YOUR SCORE.
2300 PRINT "YOUR SCORE, SNAKES RE
MAINING:"GARDEN AND FRUIT:"RE
MAINING ARE SHOWN ON THE:"SCORE
N.
2310 PRINT "WATCH OUT FOR YOUR T
RAIL AS:"A SNAKE IS LOST IF IT
:"COLLIDES INTO THE ITS TRAIL.
2320 PRINT "ALSO BEWARE OF THE
IDE OF:"THE GARDEN, IF YOU RUN I
NTO:"IT YOU HAVE LEFT THE GARDEN
N.
2330 PRINT "AND YOUR GAME IS OVE
R.
2340 PRINT "ENSURE THE ALPHA LOC
K KEY:"IS IN THE ON POSITION.
2345 PRINT "USE THE CURSOR KEYS
E,D,X,C) : TO CONTROL YOUR SNAKE
.
2350 PRINT "PRESS ANY KEY TO CO
NTINUE"
2360 CALL KEY(0,K,Y)
2370 IF Y=0 THEN 2360 ELSE 2380
2380 RETURN

```

# sinclair special

1



**Inside...**

**Latest prices round-up...**

**Latest software...**

**Order form...**

## Introduction

One thing's certain about the Sinclair world – there's never a dull moment.

Every month sees new software and new hardware produced by Sinclair enthusiasts, or produced by Sinclair itself.

The magazines do a fantastic job of keeping you up to date with the input of enthusiasts. We want to keep you in touch with Sinclair's own developments.

Every month, there'll be a Sinclair Special in this magazine.

Sometimes, inevitably, there won't be anything new to say – we want to break away from the breathless announcements of hardware and software you just can't buy.

But when something new is available, we want you to have accurate information – fast. You'll find it here.

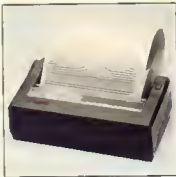
This month, we're giving you the latest information on the recommended retail prices of Sinclair equipment. They're our prices, and you may well find things cheaper (or dearer) in the shops. If they're cheaper – terrific! Snap them up. Note, however, that from us the ZX81 is down to £39.95.

We're also announcing six superb new Sinclair cassettes for the Spectrum, and three more which make full use of the ZX81. There's an order form at the back of this Special.

Next month, ...but there, next month is another story! Watch (as they say) this space.

*Nigel Searle*

Nigel Searle  
Managing Director,  
Sinclair Research Ltd.



## Spectrum – latest recommended retail prices.



**16K was £125.00**

**16K now £99.95**

**48K was £175.00**

**48K now £129.95**

**ZX Printer was £59.95**

**ZX81 was £49.95**

**ZX Printer now £39.95**

**ZX81 now £39.95**





# Six new ways to make more of your Spectrum.

Take a look at these brand-new titles. Each is an outstanding new program using the full potential of the Spectrum, for games with stunningly animated graphics, for strategies of fiendish cunning, for masterly applications of computing capability.

**Cyrus-Is-Chess** Based on the Cyrus Program, which won the 2nd European Microcomputer Chess Championship and trounced the previously unbeaten Cray Blitz machine. With 8 playing levels, cursor piece-movement, replay and 'take-back' facilities, plus two-player option. The 48K version has many additional features including an extensive library of chess openings. For 16K or 48K RAM Spectrum.

**Horace and the Spiders** Make your way with Horace to the House of Spiders, armed only with a limited supply of anti-spider-bite serum. In the house, destroy the webs before the spiders can repair them. Then destroy the spiders, before they destroy Horace! Undoubtedly the creepiest Horace program ever produced! For 16K or 48K RAM Spectrum.

**Computer Scrabble** The famous board game, on-screen—with the whole board on view! A huge vocabulary of over 11,000 words. Full-size letter tiles, four skill levels—the highest of which is virtually unbeatable. For 1 to 4 players. For 48K RAM Spectrum.

(SCRABBLE trademarks and copyright licensed by Scrabble Schutzrechte und Handels GmbH—a J W Spear and Sons PLC subsidiary.)

**Backgammon** A fast, exciting program, with traditional board display, rolling dice and doubling cube. Four skill levels. For experts—or beginners (Rules are included—it's the quickest way to learn the game.) For 16K or 48K RAM Spectrum.

**FORTH** Learn a new programming language, as simple as BASIC, but with the speed of machine code. Complete with Editor and User manual. For 48K RAM Spectrum.

**Small Business Accounts** Speeds and simplifies accounting work, produces Balance Sheets, Profit and Loss Information and VAT returns. Complete with User manual. For 48K RAM Spectrum.

**Overleaf—your Sinclair order form.**

# Three new ways to get the best out of your ZX81.

The range of Sinclair software for the ZX81 continues to grow.

These three new cassettes offer two totally different challenges to you and your ZX81. The games – like so many ZX81 games today – really do use the ZX81's capability. The FORTH program is a fascinating extension of your own computer understanding.

**Sabotege** Defender or attacker? The choice is yours in this exciting game.

Be the Guard and defend the randomly placed boxes of ammunition inside the compound – or be the Saboteur and attack the ammunition!

Written by Macronics for a ZX81 with 16K RAM. Cassette price £4.95

**City Patrol** You are the Commander of a laser-firing ship. Your task is to intercept and destroy alien suicide ships descending on your city. Judge your rating as Commander by how many aliens you destroy and how much of your city survives.

Written by Macronics for a ZX81 with 16K RAM. Cassette price £4.95

**FORTH** Discover a new programming language which combines the simplicity of BASIC with the speed of machine code.

FORTH's compiled code occupies less than a quarter of the equivalent BASIC program and runs ten times as fast. It is fully extendable by the addition of user-defined commands.

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## How to order

Simply fill in the relevant section(s) on the order form below. Note that there is no postage or packing payable on Section B. Please allow 28 days for delivery. Orders may be sent FREEPOST (no stamp required). Credit-card holders may order by phone, calling 01-200 0200 24 hours a day 14-day money-back option.

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To: Sinclair Research Ltd, FREEPOST, Camberley, Surrey, GU15 3BR

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|     | ZX Spectrum - 16K  | 3002 | 99.95           |                |
|     | ZX 81 (including 1 2A Mains Adaptor)   | 1003 | 39.95           |                |
|     | 16K RAM pack for ZX81  | 1010 | 29.95           |                |
|     | ZX Printer   | 1014 | 39.95           |                |
|     | 1 2A Mains Adaptor for use with ZX81 computer/ZX Printer combination (only required if you have an early ZX81 with 0 7A Adaptor) | 1002 | 7.95            |                |
|     | Printer paper (pack of 5 rolls)  | 1008 | 11.95           |                |
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### Section B: software purchases

| Qty | Cassette                      | Code | Item Price<br>£ | Total<br>£     |
|-----|-------------------------------|------|-----------------|----------------|
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|     | Q22/S Backgammon              | 4021 | 5.95            |                |
|     | Q23/S Cyrus-45-Chess          | 4023 | 9.95            |                |
|     | Q24/S Horace & the Spiders    | 4022 | 5.95            |                |
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|     | B5 /S Small Business Accounts | 4805 | 12.95           |                |
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|     | G25 Sabotege                  | 2124 | 4.95            |                |
|     | G24 City Patrol               | 2123 | 4.95            |                |
|     | L1 FORTH                      | 2400 | 14.95           |                |
|     |                               |      |                 | <b>TOTAL £</b> |

ORDER FORM

\* I enclose a cheque/postal order made payable to Sinclair Research Ltd for £

\* Please charge to my Access/B Barclaycard/Trustcard account no

\* Delete/complete as applicable

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Signature

Mr/Mrs/Ms

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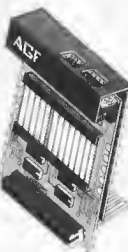
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- Accepts Atari, Competition Pro, Wico, Starflight, Quick Shot, Le Slick etc.
- Rear extension connector for all other add-ons.
- Free demo program and instructions.

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- Programmable interface Module as illustrated, complete with clip-on programming leads.
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- One pack of ten Quick Reference Programming Cards for at-a-glance setting to your games requirements. The card allows you to mark the configuration in an easy to read fashion with space to record the software title and company name.
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BY KEVIN LIDLEY

RUNS ON A ZX81

IN 16K

# GLADIATOR



Gladiator takes you back to those bloodstained days of ancient Rome when everyone's idea of a good time was to go and watch two men hack bits off each other! These days we're much more civilised about these things. We only do it on video screens!

You can either fight it out against a computer controlled opponent or take on a friend in mortal combat.

To move Gladiator 'K' use keys Z and X. To move Gladiator 'L' use keys N and M.

The program works as listed but suffers from the speed limitations of ZX81 Basic. It can be speeded up slightly by moving the mass of LET statements to the end of the program.

To do this, change line 2 to GOTO 7000 and add 7000 to all line numbers between 3 and 188. These delete lines 3 to 188.

```
1 REM SET ALL VALUES
2 GOTO 8000
3 LET Z=20
4 LET Y=5
5 LET U=9
6 LET V=9
7 REM
8 REM
9 REM
10 REM
11 REM
12 LET A$(1)=
13 LET A$(2)=
14 LET A$(3)=
15 LET A$(4)=
16 LET A$(5)=
17 LET A$(6)=
18 LET A$(7)=
19 LET A$(8)=
```





```

30 DIM B$(8,6)
32 LET B$(1,1)="
34 LET B$(2,1)="
36 LET B$(3,1)="
38 LET B$(4,1)="
40 LET B$(5,1)="
42 LET B$(6,1)="
44 LET B$(7,1)="
46 LET B$(8,1)="
48 DIM C$(8,6)
50 LET C$(1,1)="
52 LET C$(2,1)="
54 LET C$(3,1)="
56 LET C$(4,1)="
58 LET C$(5,1)="
60 LET C$(6,1)="
62 DIM D$(8,6)
64 LET D$(1,1)="
66 LET D$(2,1)="
68 LET D$(3,1)="
70 LET D$(4,1)="
72 LET D$(5,1)="
74 LET D$(6,1)="
76 LET D$(7,1)="
78 LET D$(8,1)="
80 REM SCREEN SET UP
82 DIM E$(8,6)
84 LET E$(1,1)="
86 LET E$(2,1)="
88 LET E$(3,1)="
90 LET E$(4,1)="
92 LET E$(5,1)="
94 LET E$(6,1)="
96 LET E$(7,1)="
98 LET E$(8,1)="
100 DIM F$(8,6)
102 LET F$(1,1)="
104 LET F$(2,1)="
106 LET F$(3,1)="
108 LET F$(4,1)="
110 LET F$(5,1)="
112 LET F$(6,1)="
114 LET F$(7,1)="
116 LET F$(8,1)="
118 DIM H$(8,6)
120 LET H$(1,1)="
122 LET H$(2,1)="
124 LET H$(3,1)="
126 LET H$(4,1)="
128 LET H$(5,1)="
130 LET H$(6,1)="
132 LET H$(7,1)="
134 LET H$(8,1)="
136 REM SCREEN SET UP
138 PRINT AT 0,0,"
510 FOR N=1 TO 20
520 PRINT "
530 NEXT N
540 PRINT "
550 PRINT AT 20,1," KEYS (N)-(M)
560 PRINT AT 3,0,"
510 PRINT AT 1,1," ;AT 2,15,"
600 PRINT AT 1,4," ;AT 2,4,"
610 PRINT AT 2,0," ;AT 2,4,"
620 PRINT AT 1,0,"
630 PRINT AT 5,0,"
640 PRINT AT 6,0,"
650 PRINT AT 7,0,"
660 PRINT AT 8,0,"
670 PRINT AT 9,0,"
999 REM START OF GAME
1000 FOR I=1 TO 8
1010 PRINT AT 10+I,Y,C$(I),AT 10
1020 NEXT I
1030 REM NOW NEXT
1040 IF INKEY$="X" THEN LET Y=Y+
1045 IF INKEY$="Z" THEN LET Y=Y-
1050 IF INKEY$="M" THEN LET Z=Z+
1055 IF INKEY$="N" THEN LET Z=Z-

```

```

1100 REM REMEMBER CH 47
1200 IF Y<1 THEN LET Y=1
1220 IF Y>19 THEN LET Y=19
1240 IF Z<1 THEN LET Z=1
1260 IF Z>24 THEN LET Z=24
1280 GOTO 1000
1300 REM SCREEN SET UP
1320 FOR I=1 TO 8
1340 PRINT AT 10+I,Y,C$(I),AT 10
1360 NEXT I
1380 REM SCREEN SET UP
1400 LET K=INT (RND*10)+1
1420 IF K=5 THEN LET U=U-1
1440 PRINT AT 2,10,U
1460 IF U=0 THEN GOTO 5000
1480 LET N=INT (RND*10)+1
1500 IF N=5 THEN LET J=J-1
1520 PRINT AT 2,26,J
1540 IF J=0 THEN GOTO 5000
1560 GOTO 1020
1580 REM SCREEN SET UP
1600 FOR I=1 TO 8
1620 PRINT AT 10+I,Z,E$(I),AT 10
1640 NEXT I
1660 FOR N=1 TO 40
1680 PRINT AT 20,2,"
1700 KILLED YOU
1720 PRINT AT 20,2,"
1740 KILLED YOU
1760 PRINT AT 20,2,"
1780 NEXT N
1800 GOTO 5000
1820 REM SCREEN SET UP
1840 FOR I=1 TO 6
1860 PRINT AT 10+I,Y,F$(I),AT 10
1880 NEXT I
1900 FOR N=1 TO 40
1920 PRINT AT 20,2,"
1940 KILLED YOU
1960 PRINT AT 20,2,"
1980 NEXT N
2000 GOTO 5000
2020 FOR N=1 TO 22
2040 SCROLL
2060 NEXT N
2080 FIRST
2100 PRINT AT 0,0,"
2120 PRINT AT 1,0,"
2140 FOR N=1 TO 15
2160 PRINT AT 20,0,"
2180 NEXT N
2200 PRINT AT 20,0,"
2220 PRINT AT 21,0,"
2240 SLOW
2260 PRINT AT 3,10,"
2280 AT 5,10,"
2300 PRINT AT 7,2," THIS IS R GR
2320 PRINT AT 7,2,"
2340 PRINT AT 9,2,"
2360 PRINT AT 9,2," GLADIATORS IT
2380 PRINT AT 10,2," IN TWO
2400 PRINT AT 11,2," YOU AGAIN
2420 PRINT AT 12,2,"
2440 PRINT AT 13,2,"
2460 PRINT AT 14,2,"
2480 PRINT AT 15,2,"
2500 PRINT AT 16,2,"
2520 PRINT AT 17,2,"
2540 PRINT AT 18,2,"
2560 PRINT AT 19,2,"
2580 PRINT AT 20,3,"
2600 PRINT AT 20,3,"
2620 PRINT AT 21,3,"
2640 PRINT AT 22,3,"
2660 PRINT AT 23,3,"
2680 PRINT AT 24,3,"
2700 PRINT AT 25,3,"
2720 PRINT AT 26,3,"
2740 PRINT AT 27,3,"
2760 PRINT AT 28,3,"
2780 PRINT AT 29,3,"
2800 PRINT AT 30,3,"
2820 PRINT AT 31,3,"
2840 PRINT AT 32,3,"
2860 PRINT AT 33,3,"
2880 PRINT AT 34,3,"
2900 PRINT AT 35,3,"
2920 PRINT AT 36,3,"
2940 PRINT AT 37,3,"
2960 PRINT AT 38,3,"
2980 PRINT AT 39,3,"
3000 PRINT AT 40,3,"

```



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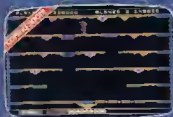
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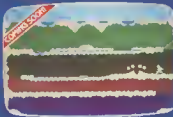


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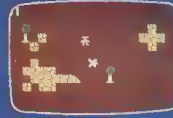
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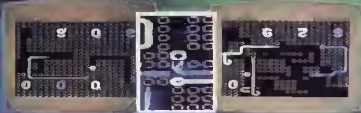
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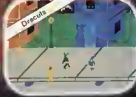
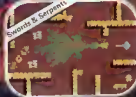
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# GREAT SOFTWARE DISASTERS

Cheques cashed and programs not delivered seems to be the biggest problem area in the home computer industry's reputation. The second of our Great Software Disaster columns wrote itself after a deluge of letters about disappointed youngsters who had waited months for a cassette which was still to arrive. We've printed a small cross section of the letters below and phoned up several software companies to find out why delays may occur, how long it is reasonable to wait before assuming that something has gone wrong and how to go about complaining.

## LOST A SNATCHA

One afternoon in March, having saved up all my money to splash out on a program for my Vic-20, I wrote to Imagine Software requesting a Catcha Snatcha for £5.50.

I waited for three days for it to come, the date by which their advert claimed I would have it. Living in London, I couldn't go to Liverpool to complain and I was at school whenever I might have been able to phone.

Christopher Morgan,  
Charlton Place,  
London SW1

Engine Evans of Imagine came back positively on this one. "As of now there are no delays. And we do have a complaints procedure for dealing with customers who are suffering from postal delays."

"Part of the problem in the past was that magazines need copy for adverts a long time before the issues actually come out. We would book the advert at the same time we started work on the game so we could have it ready at the same time the magazine hit the streets. But to do this, meant there could not be the slightest delay in production."

"Now there are no problems in timing as we have all our latest titles in stock before we launch them. Our claim of 48 hour delivery time is definitely now in action."

On Imagine's behalf, I would like to add, Christopher, that C&VG phoned their offices at 5.45pm, so don't be afraid to phone when you come home from school.

## CLUB LETDOWN

In February this year my son joined, through your magazine, the Microcomputer Software Club and, shortly afterwards, he received the newsletter advertising various cassettes.

He decided to purchase the game tape Golf, completed the form and posted it with a cheque for the correct amount. The cheque has been cashed

but as of late May, the tape had still not arrived.

Would you please investigate and let me know why the tape has not been sent.

A. R. Gardner,  
Bishopings,  
Glasgow.

John Durrant of Microcomputer Software Club replies: "We usually promise a 24 hour turn-around on receiving an order. The club keeps an

average 50-100 tapes of each title in stock and this is put up to 3-500 on the biggest sellers.

"Occasionally when a manufacturer is having production problems, club members can wait as long as a week. But this is rare and the reason for using the club rather than going direct to the manufacturer is the fast reliable turn-around."

"Our policy on complaints of non-delivery, or the occasional bad leader, is to send it out again and ask the purchaser to send one tape back if two arrive."

He added that Mr Gardiner need only write to the club or phone membership secretary Mrs King on Oxford T30275 and a new tape will be despatched.

## ANGRY ADVENTURER

For seven months now I have been waiting for five games from C.P.S. Limited which were advertised as follows: The Fourth Kind, The Doomed City, Wizard of Shan, The Ghost of Radun and Convoxy.

I sent for these on November 9th 1982 and included a cheque for £47.80 and after repeated phone calls and numerous letters, I still have not received the games, or any money back. I understand that C.P.S. now call themselves Chameleon Computer Games.

D. K. Ditchburn,  
Nunthorpe,  
Middlesbrough

Let us put you right on one point Mr Ditchburn, Chameleon Computer Games are not the same company as C.P.S. Chameleon did have an agreement to market three C.P.S. games, but have since withdrawn that agreement and impounded royalties to C.P.S.

Great Software Disasters is our watchdog on the industry. If there's anything which has angered you, software, hardware or computer company, please write in and tell us and we'll look into it and publish your views.

We only insist that companies must be given a chance to answer their critics before we publish. Write to: Great Software Disasters, Computer & Video Games, Durrant House, Herby Hill, London EC1R 5JB.

**PAGE**

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**PAGE 6 — 100% ATARI COMPUTING — PAGE 8**

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# ARCADE ARENA

Welcome to Arcade Arena where you have the chance to prove yourself the fastest hand on the Spectrum, Oric, or whatever, keyboard.

This issue sees four games listings for the Atari, Spectrum, Sharp and Vic-20. Next issue we've commissioned another four for different machines.

Each is a special arcade game which will test your co-ordination to the limit. But if you're under 16 and think you can take on all-comers at the game and end up with a top score, then we want to hear from you.

Put up the highest score you can on the machine and get one of your parents or a teacher at school to witness the score and fill in the form on page 62.

Score duly recorded and signed by your willing witness send it into us at C&VG before September 16th. The top three on each game will be invited to a final to further test their skills, at the Brainwave Computer Exhibition in November.

CHULBIS

# BALLOONAC

```

100 DIM A$(640),B$(10),C$(7),P$(10),CV$(7)
101 H$(10),N$(10),S$(10),SC(7)
110 RT=64:A=RT-8:POKE 106,A:GRAPHICS 18
114 POKE 704,56:POKE 708,234:POKE 710,15
120 POKE 54279,A:PMB=256*A:POKE 559,46:P
OKE 53277,3:CHB=PMB+1024
130 VTAB=PEEK(134)+PEEK(135)+256
140 ATAB=PEEK(140)+PEEK(141)+256
150 OFFS=PMB+384-ATAB:H1=INT(OFFS/256):L
O=OFFS-H1*256
160 POKE VTAB+2,LO:POKE VTAB+3,H1
170 FOR J=1 TO 10:READ A:SK$(J,J)=CHR$(A)
:NEXT J
171 DATA 0,62,42,62,20,20,65,62,65,0
180 A$(1)="":A$(640)="":A$(2)=A$
185 FOR J=225 TO 232:READ A:A$(J,J)=CHR$(
A):NEXT J
186 DATA B,28,28,73,62,28,20,20
188 COLUR=1010:GOSUB 1000:RESTORE 265
210 POSITION 6,3:?"#6:W a 1 T":POSITION
5,11:?"#6:"BalloonAc"
250 FOR J=0 TO 511:POKE CHB+J,PEEK(57344
+J):NEXT J:POKE 756,RT-4
260 FOR J=24 TO 39:READ A:POKE CHB+J,A:N
EXT J
265 DATA 223,223,223,0,251,251,251,0
266 DATA 28,62,62,28,28,28,8,0

```

```

268 RESTORE 186:FOR J=40 TO 47:READ A:PO
KE CHB+J,A:NEXT J
270 RESTORE 266:FOR J=2 TO 9:READ A:B$(J
,J)=CHR$(A):NEXT J:B$(1,1)=CHR$(0)
275 FOR J=1 TO 10:READ A:P$(J,J)=CHR$(A)
:NEXT J
276 DATA 0,86,169,130,65,1,130,92,32,0
280 FOR J=0 TO 7:READ A:SC(J)=A:NEXT J
281 DATA 12,10,8,6,6,8,10,12
290 POKE 1791,0:DL1ST=PEEK(560)+256*PEEK
(561):POKE DL1ST+6,135:RESTORE 1400:J=15
36
291 READ A:IF A<0 THEN POKE J,A:J=J+1:
GOTO 291
292 POKE 512,0:POKE 513,6:POKE 54286,192
293 SC=0:DL=8:LV=1:B=10:HB=8:LEVEL=0:LIV
ES=3:POKE 764,255:H=8:T=100
295 COLOR 35:PLOT 0,11:DRAWTO 19,11:COLD
R 5:PLOT 1,11:PLOT 2,11:PLOT 3,11:POSITI
ON 9,11:?"#6:LEVEL+1
300 FOR J=30 TO 120:POKE 53248,J:SOUND 0
,100+T,B,15:T=-T:NEXT J:SOUND 0,0,0,0
305 POKE 77,0:POKE 1790,120:POKE 1791,1:
DL=DL-1:LV=(LV=0):HB=HB+2:B=HB:IF B>30 T
HEN B=30
310 RESTORE 1500+100*LV:GOSUB 1500+100*L
V:FOR J=0 TO 7:READ A:C(J)=A:NEXT J:IF D
L<0 THEN DL=0
320 FOR J=1 TO 5:SOUND 0,82,10,10:FOR K=
1 TO 10:NEXT K:SOUND 0,0,0,0:FOR K=1 TO

```

**RUNS ON AN ATARI 400/800 IN 16K**

**BY SIMON GOODWIN**

Can you become Top of the Poppers? No, not yet another bunch of pretty musicians. This Popper aims to become number one in the balloon bursting chart! And all you need is a silly hat with a sharp pointed spike on top. What, you haven't got one! Oh well, never mind the Atari mad hotter will supply you with one as soon as you've keyed in this game.

The idea is to manoeuvre your little man with the spiked hat around of the bottom of the screen, placing him under balloons which drift down from the sky above him. If you miss and a balloon hits the ground you lose one of your three lives. But you can save yourself

by booting the balloon back into the sky with a well aimed kick. As long as the balloon is below head height and the little man is near enough then he'll be able to save a life.

Some balloons are tricky and turn into skull and crossbones before reaching the ground — these must be avoided at all costs. To get beyond the first screen you must burst 12 balloons. The second tests you with 14 balloons, the third 16 and so on.

The balloons drop faster on each subsequent screen and more of them drop diagonally instead of vertically. You score for each balloon popped and a bonus is given when you complete a screen. You can freeze the action at any time by pressing any key.

## Program Notes:

Line 180. The string assignments are to "CONTROL COMMA" (the heart shape). The printer prints this as a space.  
Line 210. Any mixture of inverse, upper and lower case will do in the title, just to make it attractive.  
Line 383. As line 180.  
Line 435. As line 180.  
Line 550. The word "START" is in inverse.  
Line 576. As line 180.  
To make it easier to pop a balloon, after line 400 so that the tests on "P" are greater than 4.  
To make it easier to pop a balloon, after line 372 so that the tests on "P" are greater than 2.

## Hints on Play:

After popping a balloon, immediately return to the centre of the screen. This is critical on the higher levels of play.  
It is safe to pass through the skull and crossbones once it has missed your head; but don't kick it.  
Don't panic trying to get exactly lined up. It is often easier to accept that you are off centre for the balloon, and wait and kick it up again, then to keep pulling on the stick trying to move just that little bit.

```

20:NEXT K:NEXT J:IF DL<0 THEN DL=0
330 A=INT(RND(0)*B):IF C(A)=1 THEN 330
335 IF PEEK(764)<255 THEN GOSUB 610
340 X=0:IF RND(0)*12<LEVEL THEN X=RND(0)
/2:IF RND(0)>0.25 THEN X=X
350 IF (A=0 AND X<0) OR (A=7 AND X>0) TH
EN X=X
352 SKP=336-LEVEL/2:B$=H$:NC=CV(A):N$=H$
:IF RND(0)<0.15 THEN NC=14:N$=SK$
355 IF SKP<332 THEN SKP=332
360 D=64+16*A:POKE 705,CV(A):POKE 53249,
D:V=C(A)*8+272:COLOR 0:PLOT A*2+2,C(A)
365 D=D+X:POKE 53249,D:AS(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 THEN BOOT=1
366 IF V<SKP THEN FOR K=1 TO DL:NEXT K:G
OTO 365
367 B$=N$:POKE 705,NC
370 D=D+X:POKE 53249,D:AS(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 THEN BOOT=1
371 IF V<346 THEN FOR K=1 TO DL:NEXT K:G
OTO 370
372 P=PEEK(1790):IF P>0-2 AND P<D+2 THEN
GOSUB 900:GOTO 380
374 D=D+X:POKE 53249,D:AS(V,V+9)=B$:V=V+
1:IF STRIG(0)=0 AND BOOT=0 THEN 400
375 IF V<354 THEN FOR K=1 TO DL:NEXT K:G
OTO 374
376 DR=1
380 C(A)=C(A)-1:B=8-1:IF DR=1 THEN DR=0:
GOSUB 470
383 AS(V,V+B)="":IF B>0 THEN FOR J=1 TO
15:NEXT J:BOOT=0:GOTO 330
390 POKE 1791,0:FOR J=0 TO LEVEL:POSITIO
N B,8:?" #6:"bonus":SOUND 0,150,10,15:SC=
SC+10*(LEVEL+1)+LIVES
392 POSITION 14,11:?" #6:SC:FOR K=1 TO 10
0:NEXT K:POSITION B,8:?" #6:" "
395 SOUND 0,0,0,0:FOR K=1 TO 100:NEXT K:
NEXT J:IF SC<4999 AND EX=0 THEN GOSUB 60
0
396 LEVEL=LEVEL+1:COLOR 0:FOR J=0 TO 5:P
LOT 0,J:DRAWTO 19,J:NEXT J:GOSUB 1000:PO
SITION 9,11:?" #6:LEVEL+1:GOTO 300
400 BOOT=1:P=PEEK(1790):IF P<D-4 OR P>D+
4 THEN GOTO 374
405 FOR K=12 TO 15:SOUND 1,100,10,K:NEXT
K:FOR K=15 TO 0 STEP -5:SOUND 1,100,10,
K:NEXT K
407 IF NC>14 THEN 410
408 NC=0:GOTO 376
410 V=V-2:X=ABS(P-0)/12:IF 0>125 THEN X=
-X
412 GOTO 500
420 IF NC=14 THEN 450
421 COLOR 35:PLOT LIVES,11
425 POKE 1791,0:FOR J=15 TO 0 STEP -0.75
:FOR K=2 TO 10 STEP 2:POKE 704,K*J:SOUND
0,J*K,2,J:NEXT K:NEXT J
430 LIVES=LIVES-1:POKE 704,56:IF LIVES=0
THEN B=0:GOTO 550
435 AS(V,V+B)="":FOR J=30 TO 120:POKE 53
248,J:SOUND 0,100+T,8,15:T=T-1:NEXT J:SOU
ND 0,0,0,0
440 POKE 1790,120:POKE 1791,1:RETURN
450 FOR J=0 TO 15:FOR K=15 TO 1 STEP -3:
SOUND 0,J*K,14,15:POKE 705,J*K:NEXT K:NE
XT J:SOUND 0,0,0,0:RETURN
500 D=D+X:POKE 53249,D:AS(V,V+9)=B$:V=V+
1:IF V>312 THEN FOR K=1 TO DL:NEXT K:GOT
O 500
510 V=V+1:BOOT=0:GOTO 370
550 RESTORE 590:POSITION 3,6:?" #6:"PRESS
START TO:POSITION 5,7:?" #6:"play again
"
```

```

570 IF PEEK(53279)<>6 THEN 580
575 COLOR 0:PLOT 3,6:DRAWTO
16,6:PLOT 5,
7:DRAWTO 14,7:FOR J=0 TO 5:
PLOT 0,J:DRAW TO 19,J:NEXT J
576 POKE 53249,0:AS(V,V+B)="
:B$=H$:COLOR=1010:GOSUB 1000:GOTO 293
580 READ A:IF A=1 THEN RESTORE 590:GOTO
580
585 SOUND 0,A,10,15:FOR J=1 TO 22:NEXT J
:READ A:SOUND 0,A,10,10:FOR J=1 TO 32:NE
XT J:GOTO 570
590 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
591 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
592 DATA 182,91,144,91,121,91,108,91,102
,91,108,91,121,91,144,91
593 DATA 243,121,193,121,162,121,144,121
,136,121,144,121,162,121,193,121
594 DATA 162,81,128,81,108,81,96,81,91,8
1,96,81,108,81,128,81
595 DATA 182,91,144,91,121,91,108,91,102
,91,108,91,121,91,144,91,-1
600 LIVES=LIVES+1:EX=1:COLOR 5:PLOT LIVES
,11:RETURN
610 POKE 1791,0:FOR J=1 TO 50:NEXT J:POK
E 764,255
620 IF PEEK(764)<255 THEN POKE 1791,1:P
OKE 764,255:RETURN
630 FOR J=1 TO 50:NEXT J:GOTO 620
900 IF NC=14 THEN 930
910 AS(V,V+9)=P$:SOUND 0,5,8,15:FOR K=1
TO 5:NEXT K:SOUND 0,0,0,0:SC=SC+SC(A)*(L
EVEL+1)
920 POSITION 14,11:?" #6:SC:RETURN
930 NC=0:POP 1:GOTO 376
1000 RESTORE COLOR:FOR J=0 TO 3:READ A:
CV(J)=A:NEXT J:COLOR=COLOR+10:IF COLOU
R=1070 THEN COLOR=1010
1004 CV(4)=CV(0):CV(5)=CV(3):CV(6)=CV(1)
:CV(7)=CV(2)
1005 POKE 708,CV(2):POKE 709,CV(1):POKE
710,CV(3):POKE 711,CV(0):RETURN
1010 DATA 70,186,234,152
1020 DATA 166,26,72,102
1030 DATA 202,26,8,122
1040 DATA 182,246,218,86
1050 DATA 28,184,120,246
1060 DATA 24,54,252,168
1080 DATA 72,173,255,6,240,25,173,0,211,
106,106,106,176,5,206,254,6,144,6,106,17
6,3,238,254,6,173,254,6,141,0,208
1402 DATA 104,64,-1
1500 FOR J=0 TO 5
1510 COLOR 4:PLOT 4,J
1520 COLOR 36:PLOT 6,J
1530 COLOR 164:PLOT 8,J
1540 COLOR 132:PLOT 10,J
1550 COLOR 164:PLOT 12,J
1560 COLOR 4:PLOT 14,J:NEXT J:RETURN
1570 RETURN
1599 DATA -1,5,5,5,5,5,-1
1600 FOR J=0 TO 4
1605 COLOR 132:PLOT 2,J
1610 COLOR 4:PLOT 4,J
1620 COLOR 36:PLOT 6,J
1630 COLOR 164:PLOT 8,J
1640 COLOR 132:PLOT 10,J
1650 COLOR 164:PLOT 12,J
1660 COLOR 4:PLOT 14,J
1670 COLOR 36:PLOT 16,J:NEXT J:RETURN
1699 DATA 4,4,4,4,4,4,4
```



# SUPER NIBBLERS

ARCADE  
ARENA



...ered... and made him  
...ng. ... wonke... alking  
...e far... of the... would  
...oon... ar... the...  
...ace... ar... for...  
...unt... and regular  
...su... of...  
...the people of  
...ild...  
...t...e...  
...his...  
...con...  
...n...  
...But...  
...do...

hold down the  
Nibblers on the left and the  
"1" key for Nibblers on the  
right. When...  
...the...  
...and...  
...the screen  
...the key is held  
...When the key is  
...the bomb.  
...are four levels of play  
...depending on  
...you get only one  
...life — the new... Nibblers.  
If they...  
...From...  
...the first  
...the...  
...its  
...the...

The object  
bomb the Nibblers. To

64K/16K







Can you grab the treasure filled jars hidden in the attic of the haunted house before a ghostly ghost grabs you?

You control a cat-burlar out to remove the jars from their hiding place at the top of the house with many floors. You must find your way up a maze of ladders to the attic — avoiding the ghost which will chase you single-mindedly throughout your mission. You can briefly capture the

ghost by using a snare and luring the phantom crime preventor into it — but the snare only last a few seconds and the ghost will soon be back on your trail.

Once you reach the jars you must carry them — one by one — back to your van parked outside the house.

You'll find a hammer on your travels through the house — this can be picked up and used to deal with the skeleton you'll find in the attic, if you run

underneath it holding the hammer you'll score bonus points.

The ghost can render the hammer useless by rushing up to it and turning it red. So trap the ghost before it hits the hammer. When all the jars are in your van the next screen is displayed — and you start all over again, but with less time to beat the ghost!

You get three lives to start with and these can be lost if you get caught by the ghost.

#### Variables:

a,b: co-ordinates of man.

c,d: co-ordinates of ghost.

s: score.

hs: high score.

h\$: high-scars initials.

j: number of jars left.

\$j: jar string (visual indication of jars left).

t: time left.

t\$: visual indication of time left.

m\$: visual indication of lives left.

u,g,h: general purpose flags.



BY ANDREW MURGATROYD

# HAUNTED HOUSE

RUNS ON A SPECTRUM IN 48K

ARCADE  
ARENA

```

1 REM HAUNTED HOUSE
2 REM © A.U. MURGATROYD 1983
3 REM G S S D C
4 CLEAR 34899. LET h$=0. LET
n$="RUM": PRINT AT 10,5; FLASH 1
PLEASE WAIT A MOMENT": GO TO 1
500
5 IF RTTR (a+1,b)=5 THEN PRIN
T RT a+1,b, INK 4,"H"
6 RETURN
60 PRINT OVER 1, INK 2; PAPER
a, RT a,b,"R"
51 IF a=4 AND b=15 AND h=1 THE
N BEEP .1,10 LET t=t+5: IF t=2
0 THEN LET t=20: PRINT AT 2,0,"
LET h=0. LET s=s+100: PRINT R
T 3,15, INK 6,"A"
52 LET a=a+(INKEY$="p" AND RTT
R (a+1,b)=2)-(INKEY$="q" AND RTT
R (a-1,b)=2)
53 IF a=12 AND b=26 AND RTTR (
a,b+1)=5 THEN BEEP .1,20: PRINT
AT 12,27, INK 7," ": PRINT AT 2,
0,"G": LET h=1
54 LET b=b+(INKEY$="p" AND b=
29 AND RTTR (a,b+1)<6)-(INKEY$
="q" AND b=2 AND RTTR (a,b-1)<6)
55 PRINT OVER 1; RT a,b; INK 9;
"R"
56 IF INKEY$="Z" THEN GO SUB 5
57 PRINT AT 0,10-LEN STR$ s; I
NK 6;
58 LET t=t-.015: IF t(<=0 THEN
GO SUB 808
59 PRINT AT 21,6; INK 5; PAPER
2,(t TO 1); PAPER 0;"
62 PRINT AT c,d, OVER 1, INK 2
;"C"
63 IF RTTR (c+1,d)=4 THEN POKE
35005,5: POKE 35025,26: RANDOMI
ZE USR 35000: PRINT AT c+1,d, IN
K 5; BRIGHT 1;"N": POKE 35025,29
: RANDOMIZE USR 35000: PRINT AT
c+1,d, INK 6;"F": LET c=c+4: RAND
OMIZE : LET d=(RAND*10)+1: LET s=s
+25
64 LET d+d+(d<=b AND RTTR (c,d
+1)<6)-(d>=b)
65 LET c=c-(c>=a AND RTTR (c-1
,d)<6 AND RTTR (c-1,d)<4)+(c<=
a AND RTTR (c+1,d)<6 AND RTTR (
c+1,d)<4)
66 PRINT OVER 1; RT c,d; INK 5;
"C"
67 IF a=4 AND b=28 AND s=0 THE
N LET J=j-1: LET s=1: PRINT AT 4
,28, INK 7; J$( TO J); " ": BEEP .
1,50. LET U=1
68 IF a=19 AND b=3 AND U=1 THE
N LET s=s+275: POKE 35055,5: RAN
DOMIZE USR 35000: LET u=0: LET s
=9: IF J=0 THEN GO TO 200
69 IF a=INT c AND b=INT d THEN
GO TO 800
100 GO TO 50
200 LET s=s+INT (t*S0)
210 PRINT AT a,b;" RT c,d," "
215 PRINT AT 20,1; BRIGHT 1; FL
ASH 1;"
220 POKE 35006,100. RANDOMIZE U
SR 35000
240 LET a=19: LET b=3: LET c=4:
LET d=26: LET h=h+1: LET J=3
250 LET t=20-h: IF t=10 THEN L
ET t=10
260 PRINT OVER 1; RT c,d;"C"
270 PRINT AT 20,1; J$( TO 1)
280 PRINT RT 20,1; FLASH 0;"

```

```

290 GO TO S1
300 PRINT AT a,b; OVER 1;"A"; RT
c,d; OVER 1;"C";
310 PRINT AT 21,27;" "
320 IF a=10 TO 2 STEP -2: BEEP
B10 PAUSE 1: NEXT n
B15 PAUSE 7: BEEP .075,8: PAUSE
1: PRINT AT a,b;"N": BEEP .075,
5
330 PRINT AT a,b;" "
331 LET a=a-1: IF a(<=0 THEN GO
TO 900
340 PRINT AT 21,29; INK 4,a$( TO
0 a); " "
350 LET a=19: LET b=3: LET c=4:
LET d=26: LET g=0: PRINT AT 4,2
8; J$( TO J)
360 PRINT RT c,d, OVER 1;"C"
370 GO TO S1
380 REM GO TO 500
390 IF s>=5 THEN LET h$=5: PRI
NT AT 5,0, INK 7, PAPER 2;"NEU H
IGH SCORE !! ENTER INITIALS"
400 IF s=h$ THEN FOR n=50 TO 5
0 STEP 5: BEEP .1,0: NEXT n
410 IF s>5 THEN INPUT h$: IF L
EN h$>3 THEN GO TO 902
420 PRINT AT 21,26;" "
431 PRINT AT 21,27;" ": PRINT A
T 11,0, INK 6, PAPER 1; FLASH 1;
GAME OVER
432 PRINT AT 15,0, INK 0, PAPER
5;" "
433 IF INKEY$="Y" THEN RESTORE
392: GO SUB 9900 GO SUB 9920:
GO TO S1
434 IF INKEY$="N" THEN PRINT US
R 0
440 GO TO 920
450 GO SUB 9990 REM SOUND
1000 GO SUB 9900 REM VRRIBLES
1010 GO SUB 9800 REM GRAPHICS
1020 GO SUB 9700 REM INF
1030 GO SUB 9700 REM INF
1040 GO SUB 9920 REM THE GAME
1050 GO TO S1
1060 REM BORDER 1. PAPER 1. INK 7
1070 BORDER 1. PAPER 1. INK 7
1080 LET i$=" Welcome to Haunte
d House... You must travel aro
und the house to collect the jars
which are under the chimney p
ot. When you collect a jar you m
ust take it back to your van, th
en collect another jar.
The spooks you wi
ll find are.. C Ghost
E Skeleton
The ghost can be
disposed of by laying
nd the skeleton by collect
ing the hammer and running
underneath."
9715 LET i$=i$+" CONTR
OLS (Q) Up (R
) Down (Z) Left (P
) Right (Z) Lay a snar
s"
9717 PRINT " HAUNTED
HOUSE"
9718 PRINT " = = = = =
9719 PRINT PAPER 2; INK 5; BRIGHT
1;" © 1983 A.U. Murgatroyd G
5006
9720 FOR n=1 TO LEN i$. BEEP .00
5,5: PRINT i$(n); NEXT n
9725 POKE 35004,255: POKE 35006,

```

# HAUNTED HOUSE CONTINUED

ARCADE  
ARENA

```
58. RANDOIMIZE USA 35000
9730 PRINT "0, FLASH 1;" PRE
55 ANY KEY TO BEGIN
9740 RAISE 0
9750 POKE 36025,29: RANDOIMIZE US
R 35000
9760 RETURN
9799 REM *****
9803 FOR Y=65368 TO 65479
9810 READ Z: POKE Y,Z: NEXT Y
9819 REM *****
9820 DATA 50,40,146,124,56,56,40
,103,129,255,129,255,129,255,129
,255
9830 DATA 62,127,73,73,127,127,0
,66,127,34,65,65,66,66,65,65,63
,640 DATA 6,93,73,62,6,20,34,34,
,247,247,247,0,0,0,0,0
9850 DATA 0,24,0,0,0,0,0,0
,51,51,51,51,51,51,51,51
9860 DATA 0,0,0,0,15,7,7,31,0,0
,0,0,255,254,254,254,59,71,127,12
,127,255,40,16,254,254,254,254,
,254,255,255
9870 DATA 129,195,129,195,129,19
,129,126,0,73,42,0,95,0,42,73
9880 RETURN
9899 REM *****
9900 LET I=20: LET J=10: LET K=10
HHHHHHHHHHHHHHHHHHHHHHHHHHHHHH
9902 LET J=3: LET K=3: LET I=3
9903 LET I=19: LET J=3: LET K=4:
LET I=26
9904 LET I$="RAA": LET J=3
9905 LET I=0: LET J=0
9907 LET H=0
9910 LET S=0
9918 RETURN
9919 REM *****
9920 BORDER 0: PAPER 0: INK 7: C
LS: FOR N=5 TO 17 STEP 2: PRINT
AT N,0: INK 6: "FFFFFFFFFFFFFFFF"
9925 FOR N=1 TO 14: READ Y,X: PR
INT AT Y,X: INK 2: "B": AT Y+1,X:
INK 2: "B": AT Y-1,X: INK 2: "B": N
EXT N
9927 DATA 5,6,5,22,7,2,7,17,7,29
,15,11,5,11,24,13,3,13,17,15,1
,15,30,17,7,18,7
9930 FOR N=1 TO 11: READ Y,X: DR
AW INK 6: Y,X: NEXT N
9932 DATA 6,144,127,31,1,0,127,-
31,0,-144,-254,0,0,144,127,31,12
,5,-32,0,-144,-254,0
9933 PLOT 0,0
9934 PLOT 250,146: FOR N=1 TO 3:
```

```
READ X,Y: DRAW INK
6,X,Y: NEXT N
9935 DATA 0,8,-18,0,0,-4
9937 PLOT 246,154: FOR
N=1 TO 7:
READ X,Y: DRAW INK 6:X,Y: NEXT
N
9939 DATA 0,3,2,0,-5,10,-4,0,-5,
-10,2,0,0,-3
9940 PRINT AT 18,1: INK 2:"IJ";A
T 10,1: INK 2:"KL";A
T 12,27: INK 5:"G"
9942 PRINT AT 4,23: J$(TO I)
9945 PRINT AT 21,3: INK 7: TIME
9947 PRINT AT 21,3: INK 7: TIME
9949 PRINT AT 21,30: "HAUNTED HO
USE 0: A.J. MURGATROYD"
9950 PRINT #0, INK 7: "HAUNTED HO
USE 0: A.J. MURGATROYD"
9952 PRINT AT 0,0: INK 4:"1 UP"
9953 PRINT AT 3,0: OVER 1, INK 5
, " "
9954 PRINT AT 4,26: OVER 1: INK
2: "C"
9955 PRINT AT 0,30-LEN STR$ HS;
INK 7: HS
9960 PRINT AT 3,15: INK 6: PAPER
0: "E"
9970 PRINT : INK 5: AT 18,6: " ",A
T 10,8: INK 6: " "
9980 RETURN
9989 REM *****
9990 DEF FN A$(N)=(CODE A$(N)-5
AND CODE A$(N))/54)
9991 LET A$="F3111000260A3A485C1
F1F1FEFEE10ED794310FE2520F41C1
520E6FBC9"
9992 FOR J=1 TO LEN A$ STEP 2
9993 POKE 35000+J/2,16*FN A$(J)+F
N A$(J+1): NEXT J
9994 RETURN
9995 REM A B C D E F G H I J K
9996 REM A B C D E F G H I J K
9997 REM L M N
9998 REM L M N
9999 REM L M N
```

Please enter the following score in your  
Arcade Arena Competition.

I scored \_\_\_\_\_ on the following game:

BALLOONACY ☐

SUPER NIBBLERS ☐

HAUNTED HOUSE ☐

EPIDEMIC ☐

THE SCORE WAS WITNESSED BY:

WITNESS' SIGNATURE:

MY NAME IS: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

TEL: \_\_\_\_\_



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# THE SEVEN

## PLUNDERING FOR A PROFIT

Welcome back to the Galaxy of the Seven Empires where space bribes shine, struggle and chance to make an honest megabuck.

Some 3,400 of you took part in the first turn of our second Seventh Empire run and once again the galaxy is a hotbed of sneaky attacks, double dealing and back-stabbing.

Our top space commander for the first turn was D. Bell of Simonside Terrace, Heaton, Newcastle-upon-Tyne, who was the schemer behind many a daring act of piracy on the Gateway routes, on his way to 2,500.

The other top scorers in the first turn were:—

A. Conner of Woodmill Lane, Britten Park, Southampton with 2430;

P. Russell, West View Cottage, Mainstreet, Cotebach with 2138; J. Briscoe, Upper West Drive, Ferring in Sussex with 1984;

D. Bisset, High Steel, Laurencekirk, Scotland with 1939;

A. Makepeace, Thirlstone Crescent, Northampton with 1859;

C. Bergin, Austlin Road, Hunstanton, Norfolk with 1783;

M. Fiddlay, Queens Road, Abertdeen with 1753;

M. Fiary, Teftwood, Daresham with 1702;

N. Shawcross, Keatsley Close, Kirkdale, Liverpool with 1691.

We're currently looking out some software cassettes for Mi Bell. More on alter next month.

|        | As | Co | Ge | Gr | Is | Li | Ma | Me | Mo | Na | Os | Pe | Se | St | Te | Tu | Ua | Uc | Ud | Ue | Uf | Ug | Uh | Ui | Uj | Uk | Ul | Um | Un | Uo | Up | Us | Ut | Uv | Uw | Ux | Uy | Uz |  |  |
|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|
| Asad   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Bater  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Calver |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Cherip |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Evak   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Falki  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Gaher  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Haidr  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Isop   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Jelis  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Katal  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Liang  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Muall  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Muzel  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Oyrel  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
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| Querey |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| River  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Saver  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Takay  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Ungay  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Vasat  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Widen  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Xagad  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |
| Yucan  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |  |  |

THE GATEWAY ROUTE TABLE

## HIGH SPACE SURVIVAL RATE

You're certainly improving in sacking in Seventh Empire ordeis. Very few fleets were lost in space on this first turn of the second run.

But just in case, check through your ordeis carefully to ensure that any stray fleets are picked up before the second turn.

All ordeis for that turn must be with us by July 22nd. First prize for the top score is three software cassettes for his or her microcomputer but remember a grand prize of a Colecovision TV games centre goes to the highest scorer over the last six turns.

This turn the scoring was spread out as follows: 500+ 157

players, 400-499 25 players; 300-399 23 players; 200-299 44 players, 100-199 55 players; 0-99 505 players; Under 0 1664 players.

To work out where you came in this batch of scorers, study the galactic map on the opposite page and for Gateway Jumps the table above gives the Cargo profits in black on white and the Plunder profits in white on black.

This month the Imperial Ships should be moved by the following players — **Dead**, R Harris of Worthing; **Amethyst**, S Reid of Edmerton; **Water**, R Harding of Priestwich; **DTeam's**, B Deacon of Hampstead; **Sun**, A Capaldi of Tynemouth and **Bloodline** by D. Bell. No takers for the **Pirate Empire**.

The Trade Index is calculated by the computer monitoring the number of merchant fleets arriving at and leaving a star system.

Traders coming to the star system are the sellers, bidders leaving the system are the buyers. Each star also has a Trade Value which comes into the equation. Hearts are Elbow Stars (worth 200 points), Diamonds are Gem Stars (worth 150 points), Asterisks are Energy Stars (worth 100 points); and circles to Gateway Stars (50).

The crucial equation bringing all these elements together is Trade Index = Trade Value x Buyers/Sellers. So a system which has seen a mass exodus of bidders tends to have the best Trade Index.

So if 50 Buyers leave a Gem Star and 30 Sellers arrive the Trade Index = 250 (250 = 150 x 50/30).

Spotting the best systems to trade with is one of the surest ways of making a killing at the Seventh Empire. If you can predict which system will have the highest Trade Index next turn we'll provide you with a cassette for your microcomputer. If more than five of you get the right answer we may have to draw the line at live prizes.

Send entries in to the Trading Competition, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB.

## DON'T TURN THAT PAGE

If you're new to the Seventh Empire then don't turn over the page just yet.

One of the key elements in many of the empire's equations is the Trade Index of any given star. The brightly coloured Galactic Map opposite, shows two different figures under each star name.

The left-hand figures refer to the number of players' fleets visiting any particular star system, while the right-hand figure refers to the Trade Index.

## ANOTHER CHANCE TO ENTER

If the Seventh Empire appears to you we still have a batch of toolbooks ready to send out. No guarantees (in ahead but we'll put you ready should any of the 25,000 fleets currently on the map drop out. Send in the form below.

**Please include me in the Seventh Empire Competition.**

**I name my tribe:**

**My name is:**

**Address**

**Telephone**

# THE EMPIRE

## BATTLE REPORTS

Some 53 battles were fought out in the galaxy this month as tribes struggled to claim certain stars for their emperor.

Defenders came out on top again but there were some close run things — notably at Apel where Bloodline and Amethyst fleets stormed in against the Sun empire defenders.

In the most one-sided conflict, 315 defending Sun Empire fleets rounded on two lone attackers from the Dead Empire.

There was no positive battle bonuses though as all the attackers took heavy losses into war with them.

Notes of all the bonuses are included below.

Xokeg defenders suffered a loss of —, Rivav defenders won but only at the expense of a —1 loss. Rurus defenders, —1, Jadeg defenders, —1; Yuses defenders, —1, Hakub defenders, —2, Apel defenders, —1, Maden defenders, 12; Uleb defenders, —1.

For the first time in Seventh Empire history, the galaxy's diplomats have negotiated no changes on the peace treaty. In fact The Diplomatic Diagram seen below is the same as last issue which means that Sun Empire defenders could face another hard time in April.

Remember, where there's a rule the two empires are at war for this game turn and no rule means that the two empires are at peace.

The **Raid Penalty** is once again 1. The Imperial ships this turn finished up on the following systems: Vepoz, Yanok, Rivav, Sonar and Elar. Amethyst and Pirate empire ships were not placed on the map this time.



The Diplomatic Diagram

|  |            |            |            |            |            |            |            |            |            |
|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| FOZUZ<br>○   | LARUB<br>♦ | YIBET<br>♦ | XOLIP<br>♥ | ITUL<br>♥  | FUNUS<br>♥ | LULIP<br>♥ | YANOK<br>♥ | XOKEG<br>○ | ISOX<br>○  |
| 245 175 325 68 252 284 256 64 214 180 22 157 212 141 214 51 203 174 299 292    |            |            |            |            |            |            |            |            |            |
| VIZAX<br>○   | QIRUS<br>♦ | HAZAN<br>♦ | ABOR<br>♦  | SONER<br>♦ | VFOPO<br>♦ | QATOT<br>♦ | HEZOD<br>♦ | ASOL<br>♦  | SUXEK<br>♥ |
| 213 175 215 121 228 225 284 260 144 77 205 165 126 293 288 26 21 74 226 108    |            |            |            |            |            |            |            |            |            |
| RAROV<br>*   | WIDAN<br>* | RURUS<br>* | MUMIP<br>* | NAXIG<br>* | KETID<br>* | WAVAB<br>* | RIVEV<br>* | MEGUD<br>* | NABOK<br>* |
| 247 102 280 89 287 94 144 46 212 83 258 159 214 184 34 47 215 204 223 190      |            |            |            |            |            |            |            |            |            |
| DALIX<br>♦   | OLEX<br>♦  | TASAT<br>♦ | CAZUV<br>♦ | GOVAX<br>♦ | DITUG<br>♦ | OKAP<br>♦  | TOXAZ<br>♦ | CIXAN<br>♦ | GOTEG<br>♦ |
| 218 209 248 105 220 214 254 53 229 97 242 140 218 64 247 145 229 226 211 174   |            |            |            |            |            |            |            |            |            |
| ERAK<br>*  | KOVEP<br>♦ | USUG<br>♦  | PEBOR<br>♦ | JADEG<br>♦ | ENAK<br>♦  | KEPAR<br>♦ | UGON<br>♦  | FOROV<br>♦ | JINIS<br>* |
| 229 126 214 221 335 48 282 55 214 268 218 228 221 168 237 143 21 238 241 44    |            |            |            |            |            |            |            |            |            |
| FADIS<br>*   | LOKIK<br>♦ | YUSES<br>♦ | XAPUS<br>♦ | IXIP<br>*  | FAGIL<br>♦ | LIZAG<br>♦ | YODAZ<br>♦ | XUGOD<br>* | IBED<br>♦  |
| 218 44 232 237 281 55 260 175 217 72 245 96 243 102 214 131 238 81 235 104     |            |            |            |            |            |            |            |            |            |
| VASUX<br>♦   | QUXIN<br>♦ | HIPEB<br>♦ | ASOR<br>♦  | SIDAL<br>♦ | VIZET<br>♦ | QAVUV<br>♦ | HAKUB<br>♦ | APEL<br>♦  | SABAG<br>♦ |
| 282 56 214 142 243 147 225 276 229 184 253 120 288 42 224 139 213 434 252 68   |            |            |            |            |            |            |            |            |            |
| BUREP<br>♥   | WAGAP<br>♦ | ROLEK<br>♦ | MINEP<br>♦ | NUVEX<br>♦ | BAZIX<br>♦ | WUMIV<br>♦ | RORUL<br>♦ | MEDEN<br>♦ | NUZET<br>♦ |
| 214 49 212 149 258 120 268 175 264 46 237 293 211 212 257 45 214 183 282 43    |            |            |            |            |            |            |            |            |            |
| DUSUP<br>*   | OPOD<br>♦  | TUBOX<br>♦ | CIGER<br>♦ | GAZOR<br>♦ | DABAG<br>♦ | OTAN<br>♦  | TUXUX<br>♦ | CESFR<br>♦ | GIRIX<br>♦ |
| 253 125 277 117 256 70 207 195 195 74 244 13 212 189 142 324 222 225 221 114   |            |            |            |            |            |            |            |            |            |
| ELAR<br>♦  | KERUP<br>♦ | ULEB<br>♦  | PIRAD<br>♦ | JAXEL<br>♦ | EDIB<br>♦  | KOLOL<br>♦ | UKOP<br>♦  | PULUD<br>♦ | JUVAK<br>♦ |
| 264 225 264 177 218 189 226 184 245 145 284 243 207 52 212 10 20 268 44 105 90 |            |            |            |            |            |            |            |            |            |

The Galactic Map

Orders In Block Caps please

Name: . . . . .

Code No: . . . . .

Telephone No: . . . . .

|         |    | 1st Movement phase |      | 2nd Movement phase |      |
|---------|----|--------------------|------|--------------------|------|
|         | AT | ACTION             | STAR | ACTION             | STAR |
| FLEET 1 |    |                    |      |                    |      |
| FLEET 2 |    |                    |      |                    |      |
| FLEET 3 |    |                    |      |                    |      |
| FLEET 4 |    |                    |      |                    |      |
| FLEET 5 |    |                    |      |                    |      |
| FLEET 6 |    |                    |      |                    |      |
| FLEET 7 |    |                    |      |                    |      |

I wish to move the \_\_\_\_\_ Empire's Imperial Ship from \_\_\_\_\_ to \_\_\_\_\_

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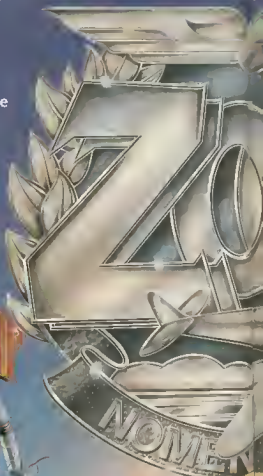
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## BEATING THE DEADLINES!

The difficult part about writing this Adventure page is that I have to operate to a deadline. That is not a problem until a game begging a review "sticks" at an early stage, leaving much work to be done before my "copy" can be written.

So there I am, typing away on my mircro. I'm tired, it's late — oh no — not another one of those difficult Adventures! Having just reviewed eight games for a recent supplement, I want to bed and forget it.

Of course, that was not the end of it — I knew that sooner or later I would have to come back to it!

So when a week-holiday weekend came along, I booted up the system, and resigned myself for a long haul.

## STRANGER BEWARE...

The rest of the screen is blank. I press a key, the disc starts to whirl in its drive, and I am suddenly on a desert highway near an abandoned gasoline station some way from a small desert town.

This starts Xenos, the latest offering on disc from Tandy.

After wandering around the gas station I decided that for now I would have to be considered a red-herring apart from the crowbar, and moseyed into town.

Although comprising only six buildings, I found it surprisingly difficult to find my way around.

Losing my bearings, I strolled up a side alley only to lose my way in the desert, nearly dying of thirst, and really dying of poison in some flesh wounds caused by something very strange and nasty out there.

Reboot, and try again. This time I will not be beaten! Why is the gas station and town deserted? Is the jeep really a red-herring?

If so, then the Jack-o-Matic 333 is a very elaborate hoax. What does the old prospector out in the desert know about a "magnetic anomaly"?

Questions began pouring through my mind, and I am away, oblivious to calls for meals, missing the TV program I had meant to watch. . . .

BY KEITH CAMPBELL



That is the other trouble with writing this page. Occasionally I come across an Adventure so intriguing, that I am unable to stop, driven on by a craving for the solution — to hell with the deadline! And Xenos is one of those few! When I have finished writing this I intend to blow up that safe if it takes me all night! (Wad a minute — could the dynamite be for another purpose?)

Xenos runs from disc only on TRS-80 Model 1/3 compatible machines. Requiring a rudimentary knowledge of the American language, if a command isn't recognised you will be very cleverly told what word might be missing.

For instance, if you type "UNLOCK DOOR" the line may be altered to read, "UNLOCK DOOR WITH what?", the "what" flashing for a while, eventually clearing to let you add further words. An unknown verb will lead to the insertion of a flashing VERB? at the start of your input.

The plot of Xenos is somewhat reminiscent of Ghost Town, in that everywhere is deserted. But similarity of setting and plot end there.

The score is announced in percentage of mission fulfilled. The first 50% is not too hard to achieve, but the going begins to get rough from there on.

Are there many red-herrings in the game, or will things all fall into place? Is Screaming Foul-Up responsible for the fact that I can put my hands in the

aquarium and apparently leave them there, or am I possibly a strange being?

Xenos is big, but does not appear limitless. Not a long term project like Zork, but one that you will go mad about until finally you have unfolded the riddle of Purgatory City!

## 'X' ADVENTURE ON TAPE...

Occasionally I describe a particular Adventure as different. That is not a suitable description for Xenos Adventure which requires a BBC Model B computer to run, and takes you into a world of underground caverns, inhabited by dwarfs and monsters.

These are dangerous creatures, and cannot be relied on to turn up in the same place in each game! Some of the situations are similar to those encountered in other games, but with a difference.

With some hard thinking the Adventurer will progress gradually towards his goal, the depositing of all treasures in the treasure store.

When this point is reached (says the blurb — for I haven't reached that point!) "something will happen".

On his travels the Adventurer will find objects not often encountered in Adventure games, the usefulness or otherwise

## HOW TO DEFEAT MOST CUNNING

I received recently a letter from reader Alex Shipp, who has been beavering away writing an adventure for his Dragon-32.

Upon completing it he found one major problem: how to stop his little brother pressing the BREAK key, then listing the whole program?

"As you can imagine," he wrote, "some of the messages rather give the game away!" Even worse, what was to stop him getting a listing before he even started to run the game?

He assured me that his brother would be quite willing to adopt such underhand methods.

This is a problem that besets every Adventure writer. If, of course, Alex's brother is as little as he sounds, then



## NEVER FEAR, HELP IS AT HAND!

Last month I reported that Richard Jones and Simon Clarke both had problems with Badiam. Simon sent a tip to Richard, Richard was able to complete the game, and thus help Simon out with his problem.

Because different people can bend their minds to differing problems, through these pages — it we at C&VG don't know the answers, we can help you to help each other!

For those similarly stuck in Badiam, printed upside-down you will find how to get past the guard dog!

Letters are still arriving with pleas of HELPI for Pyramid of Doom. To find out where to store the treasure, how to pass the rats, and how (most importantly!) to get past the iron statue — again you will find the answers printed upside down to protect the innocent!

Can anyone help Jonathan Evans of Blackburn find the treasure chest in the Tandy Pyramid maze? Please write if you know how to get to it! P. Coppins of Stanfield-le-Hope is having trouble with tablets in *Golden Voyage*.

He currently wants to throw them simultaneously into the fountain. He is sure he is on the right track — unless you know different!

of which is not obvious. Has the pentangle some secret sinister purpose?

Will the soothing music of the dulcimer send a dwarf to sleep as well as the player?

The game has over 100 locations, and the scrolling replies, often four lines or more of text, are not only amusing, they appear quickly, and have nearly the verbosity of a disc-based game.

OK, it's an impressive game — but unique? What I've not yet mentioned is that this game has a two-player option. If that is selected the game takes on a whole new dimension.

The players decide how many moves they will make each turn, and as the game proceeds, a blue message at the top of the screen indicates which player is in command.

If one player arrives in the same location as the other, the reply will include "There is another Adventurer here".

An object taken by one player cannot be taken by the other, except for purchases made in the shop.

The two players start off as rivals, and if a fight develops the loser's objects

drop to the ground, available for plundering by the winner!

When playing as rivals it is recommended that only the player whose turn it is watches the screen.

But wait — there's more! By typing ALLY, an alliance is made, the top message on the screen now displays in white, and weapon power is aggregated against the monsters in a common struggle to obtain the treasures. Perhaps this is the best way to solve an Adventure in company — no arguing about whose suggestion is the next command to be entered!

And there is always someone else to blame if things go wrong!

Unless, of course, when the goal is in sight, one player decides to rat on the agreement, type BREAK ALLIANCE, and rush home with all the goodies!

I can only describe Xanadu as unique, at least at the time of writing! No doubt this will not remain the only one of its kind for very long!

Xanadu Adventure is a fascinating game that I can thoroughly recommend at a price of £7.75 from Hopesoft of Newbury.

code to solve the game faster than trying the fair way! If he does, then he will have spelled only his own enjoyment of the game.

Even after using a reset button which when pressed prevents a program from listing or running, it is still possible to look at the English text.

One has only to PRINT CHR\$(PEEK(video rem)); successfully from the command mode (see Adventure page in the first issue of C&VG).

Cheating can only be made difficult by encoding the text, and include a decoding routine in the program, but at the cost of response time and memory.

All this reminds me of my desperate attempts to solve *Savage Island Part 1*, by peeking RAM (Yes — even I am not above that sort of thing!) I gained some vocabulary, and saw some extremely surprising things that seemed quite out of character with the game I thought I was playing.

## MIND OVER MATTER...

I got it wrong again! I don't know, and I despair! *Empire of the Overmind* plays as R. G.W. from Birmingham, and Steven Essary from Orpington have both told me I don't need to drop other objects to use the one of my choice. They tactfully explain that although it might be carrying something, I am not necessarily HOLDING it. What I should do is to HOLD the object before trying to use it!

So I reloaded *Overmind*, and sure enough, found it was told what I was holding separately from what I was carrying! A fine point — one I have not come across before in an Adventure! I shall have to read the smelt more carefully next time!

I take back all I said! Another slip like this and I stand to have my licence to Go North revoked!

It all goes to show that even C&VG's expert Adventurer is not infallible — there's hope for all of you yet!

Seriously, Keith Campbell is always interested in hearing from you the readers, even if it is a criticism.

## WHAT EVEN THE KING DRAGON

the easy answer is to give the BREAK key a good POKE where it will hurt most — i.e. disable it!

Unfortunately, that won't prevent the program from being listed before the game has been run, and it won't be long, by the sound of it, before Alex's little brother catches on!

However, I suspect that little brother is really only symbolic of all those low-down cunning and devious people whose main purpose in life is to find a way to prove that our excellent programs contain errors, have omitted the logic for an obscure command, or can otherwise be proved faulty. Let him look at the listing, and see as we all look at the listing, and see whether, even with plain English staring him in the face he can outsmart the program

## ADVENTURENET HELPLINE

(Clarke of Harpenden).  
and it will die. (Thanks to Simon and I will die).  
Fried this to the dog  
burger meat from the fridge, and I  
cabin. Put the pill in the ham-  
can get the blue pill from the  
can find the window hook, you  
To get past the guard dog, if you  
Bedlam  
acid — go on — trust me!  
jerky. Throw the Ruby into the  
route is an alternative to the  
"stone treasures here". The oys-  
to give a complete message  
phics merges with the stone elar-  
The bit of bones with helio-  
Pyramid of Doom:

# MACHINE CODE

## DEALING WITH LOGICAL VALUES

So far in this series we have been looking at programming in terms of arithmetic and interpreting the 0s and 1s in the computer as having numerical values.

However, there are instructions that allow us to treat the 0s and 1s as having logical or Boolean values, with 0 meaning false and 1 meaning true. The simplest logical operations are:

NOT: Invert a single bit, so 0 (false) becomes 1 (true), and vice versa.  
AND: Takes two bits and returns 1 (true) if both the bits are 1 (true) and returns 0 (false) otherwise.



INCLUSIVE OR (usually just OR): Takes two bits and returns 1 (true) if at least one of the bits is 1 (true) and returns 0 (false) if both the bits are 0 (false).  
EXCLUSIVE OR (usually abbreviated EOR or XOR): Takes two bits and returns 1 (true) if exactly one of the bits is 1 (true) and returns 0 (false) otherwise.

NOT and AND reflect the use of these words in ordinary English. We have two types of OR because OR in ordinary English is ambiguous — sometimes meaning INCLUSIVE OR and sometimes meaning EXCLUSIVE OR.

## POSSIBILITY OF CONFUSION ...

There are symbolic forms for these operations, NOT being indicated by writing a bar above a symbol, so NOT P would be written as  $\bar{P}$ , and two commonly used sets of symbols for AND, OR, XOR are  $\cdot$ ,  $\vee$  and  $+$ ,  $+$ ,  $+$ , so we write  $P \cdot Q$  for P AND Q,  $P \vee Q$  for P OR Q,  $P \vee Q$  for P XOR Q, or  $P \oplus Q$  for P AND Q,  $P + Q$  for P OR Q,  $P + Q$  for P XOR Q.

It is best to use the first set of symbols. With the second set there is a possibility of confusion with the arith-

metic symbols for multiplication and addition. The second set is more often used in electronics where this confusion is less likely.

Logical operations can be combined to build up expressions, for example (P  $\cdot$  Q) meaning NOT and (P AND Q) or (P  $\cdot$  Q) (Q  $\cdot$  R) meaning (P AND Q) OR (Q AND R).

The branch of mathematical logic called *Boolean Algebra* deals with methods of evaluating and simplifying expressions like these.

The 6502, 6809 and Z80 microprocessors all have instructions for AND, INCLUSIVE OR and EXCLUSIVE OR, which all work in a similar way.

The 6502 opcode mnemonics are AND, ORA, and EOR, and can be used with immediate, absolute, zero page, indirect X, indirect Y, zero page X, absolute X, and absolute Y addressing modes.

The 6809 opcode mnemonics are ANDA, ANDB, ORA, ORB, EORA, EORB, the A or B indicating the accumulator the instruction operates on.

Like most 6809 instructions, these opcodes can be used with all meaningful addressing modes.

The Z80 opcode mnemonics are AND, OR, and XOR, and these can be used with 8-bit immediate data, a register — A, B, C, D, E, H, or L, or an indirect memory reference — (HL), (IX + displacement), (IY + displacement).

The machine code instructions work on bytes, performing the logical operation simultaneously on the eight pairs of corresponding bits in the accumulator and the operand, and leaving the result in the accumulator.

For example, if we have:

```
6502
LDA %00110011
AND %01010101
6809
LDA %00110011
ANDA %01010101
Z80
LD A,%00110011B
AND 01010101B
```

In 6502 and 6809 assembly language a binary number is indicated by writing a % sign in front of it, and in Z80 assembly language by writing a B after the number.

The result will be to leave 00010001 binary in the accumulator. Similarly, using OR instead of AND would leave 01110111 binary in the accumulator, and using EXCLUSIVE OR would leave 01100110 in the accumulator.

These logical instructions are frequently used when we want to work with some of the bits in a byte and

ignore others or leave them unchanged.

For example, suppose we are working with ASCII codes for letters of the alphabet and it does not matter whether we have upper case or lower case letters.

The ASCII codes for upper case letters are the binary numbers from 01000001 to 01011010 (65 to 90 decimal) and the codes for lower case letters are the binary numbers from 01100001 to 01101010 (97 to 122 decimal).

The difference between the code for an upper case letter and the code for the corresponding lower case letter is that the upper case letter has 0 in bit 5 while the lower case letter has 1 in bit 5.

We can use the logical instructions to affect bit 5 only and leave the other seven bits unchanged.

If we start with the ASCII code for a letter, AND with 11011111 will always leave an upper case letter, OR with 00100000 will always leave a lower case letter, and XOR with 00100000 will change an upper case letter to a lower case letter and vice-versa.

## LOOKING BEHIND THE MASK ...

A bit pattern used with a logical instruction in this way is called a mask. We can work out the type of instruction and the mask we need in any particular case with the following relations, where B represents any bit value (0 or 1):



B 1 = B  
B 0 = 0

B 1 = 1  
B 0 = B

B 1 = B  
B 0 = B

# MACHINE CODE

In general, we use AND with a mask to set some bits to 0 while leaving others unchanged, OR with a mask to set some bits to 1 while leaving others unchanged, and XOR with a mask to complement some bits while leaving others unchanged.

## AN ADDITIONAL INSTRUCTION

The 6802 has one other instruction related to these logical instructions — BIT, which can be used with zero page and absolute addressing modes.

BIT only effects the flags, bits 7 and 6 of the memory location specified in the operand going into the sign and overflow flags respectively, and the zero flag being set according to the result of an AND operation between the accumulator and the memory location (this AND does not affect the accumulator, only the zero flag).

Related instructions on the Z80 are CPL, and the BIT, SET, RES groups.

CPL complements the contents of the accumulator, changing 0s to 1s and 1s to 0s.

BIT, SET and RES are used in the form BIT b, register, BIT b, (HL); BIT b, (IX+d); BIT b, (IY+d); and similarly for SET and RES, where b is the bit number, from 0 to 7 that the instruction works on.

BIT puts the complement of the specified bit into the Z flag, setting the Z flag so it will reflect the value of the bit.

SET sets the specified bit to 1, and RES resets the specified bit to 0.



If you have any problems relating to Ted Bell's Machine Code articles, questions about machine code programming or assembly language, then please don't hesitate to drop us a line and we'll pass on your questions to our expert.

Remember, the address to write to is Machine Code, c/o Computer and Video Games, Durrant House, 8 Herbel Hill, London EC1R 5JB.

In the meantime if there is any aspect of machine code programming you feel needs more attention why not tell us.

In the 6809, related instructions are COMA, COMB, COM, ANDCC, ORCC, CWAL.

COMA and COMB complement the A and B accumulators respectively. COM can be used with direct, extended and indirect/indexed addressing modes, and complements the contents of the memory location specified by the operand.

ANDCC, ORCC and CWAL can be used with immediate addressing only. ANDCC ANDs the operand with the Condition Code register, leaving the result in the Condition Code register, ORCC ORs the operand with the CC register leaving the result in CC, CWAL ANDs the operand with the CC register, leaving the result in CC, and stops and waits for an interrupt.

## FLAGS WITH CLEAR VALUES

ANDCC and ORCC are used to put specific values into the flags.

For example, the Carry flag is bit 0 of the Condition Code register.

So to set the carry to 1 we use the instruction ORCC #00000001, and to clear the carry to 0 we use the instruction ANDCC #11111110.

The 6809 assembly language contains the mnemonics CLC (Clear Carry), SEC (Set Carry), CLI (Clear Interrupt Mask), SEI (Set Interrupt Mask), CLV (Clear Overflow), SEV (Set Overflow).

These are included to make 6809 source code compatible with 6800 source code.

The instructions are assembled into the machine code for the corresponding ANDCC or ORCC instructions.

| TRUTH TABLES |   |   |     |   |   |
|--------------|---|---|-----|---|---|
| OR           |   |   | NOT |   |   |
| P            | Q |   | P   | Q |   |
| 0            | 0 | 0 | 0   | 1 | 1 |
| 0            | 1 | 1 | 1   | 1 | 0 |
| 1            | 0 | 1 |     |   |   |
| 1            | 1 | 1 |     |   |   |
| XOR          |   |   | AND |   |   |
| P            | Q |   | P   | Q |   |
| 0            | 0 | 0 | 0   | 0 | 0 |
| 0            | 1 | 1 | 0   | 1 | 0 |
| 1            | 0 | 1 | 1   | 0 | 0 |
| 1            | 1 | 0 | 1   | 1 | 1 |

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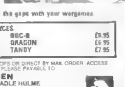
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# GRAPHICS

By Garry Marshall

The Texas Instruments TI-99/4a has some highly individual features for graphics.

The graphics commands that are provided by TI Basic, which is the version of Basic that is built into the computer, include CHAR, HCHAR, VCHAR and GCHAR.

These commands have the following purposes: CHAR permits a graphics character to be defined so that you can establish say, your own kind of Space Invader. With HCHAR and VCHAR characters can be placed on the screen, and GCHAR allows you to examine the screen.

Although commands and facilities comparable to these are available on other machines, very few provide them in such a consistent and easily used form. In particular, the commands for



Fig. 1.

placing characters on the screen and for examining the screen work in terms of the screen's row and column positions. Thus, they provide the same capability as POKE and PEEK do on other machines.

Now, suppose that we want to create a graphics character such as the one shown in Figure 1 to use in a game. This character can be defined and assigned the code 128 by the command:  
CALL CHAR(128, "040EFF1F0C7E87E")

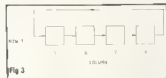
Note that the characters are based on an 8x8 dot matrix, and that the string used to define the character is just the row-by-row hexadecimal representation of the character when each dot that is "on" is represented by a 1 and each one that is "off" is represented by a 0.

There is not too much scope for representing a tank (in case you didn't recognise it) in this way, and if you want to create a more realistic effort you can always use four characters to be plotted next to each other as shown in Figure 2. The four characters used here can be defined as characters by

```
CALL CHAR(129, "000103FF07033F")
CALL CHAR(130, "C0E0F8FAFAF8
DFA")
CALL CHAR(131, "ED82D1F")
CALL CHAR(132, "76AB76F8")
```

Note that any trailing zeros need not be included in the string describing a character.

The small tank can be plotted at column 5 of row 7, for example, by  
CALL HCHAR(7,5,128)



The larger tank can be plotted with its top left part at column 8 of row 7 by:  
CALL HCHAR(7,8,129)  
CALL HCHAR(7,9,130)  
CALL HCHAR(8,8,131)  
CALL HCHAR(8,9,132)

With the computer's commands it is particularly easy to create movement. For instance, to make the small tank cycle through the positions shown in figure 3 the following program segment will suffice. It works by blanking out the tank (with a space character code 32) just before it is plotted in the next position.

```
100 DIM NEXT(8)
110 NEXT(5)=6
120 NEXT(6)=7
130 NEXT(7)=8
```

```
140 NEXT(8)=5
150 ROW=7
160 COLUMN=5
170 CALL HCHAR(ROW, COLUMN,
128)
180 CALL HCHAR(ROW, COLUMN, 32)
190 COLUMN=NEXT(COLUMN)
200 GOTO 170
```

The movement can be slowed down by introducing a delay into the loop, say, between lines 170 and 180.

If the path to be followed by the tank already contains plotted characters that should be replaced as the tank passes, then lines 170 to 200 can be replaced with the following lines. The variable TEMP holds the code of the character to be replaced after the tank has passed.  
170 CALL GCHAR(ROW, COLUMN, TEMP)  
180 CALL HCHAR(ROW, COLUMN, 128)  
190 CALL HCHAR(ROW, COLUMN, TEMP)  
200 COLUMN=NEXT(COLUMN)  
210 GOTO 170

Paths other than a straight line can be created by allowing the row position to change as well as the column position.

With SCREEN the colour of the screen can be established, while with COLOR the colours of the characters can be established independently.

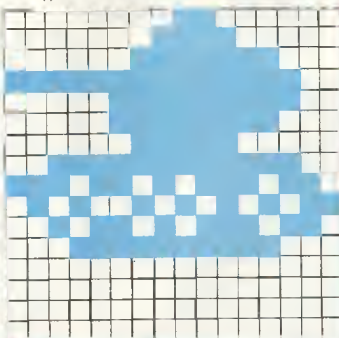


Fig. 2.

# For big At

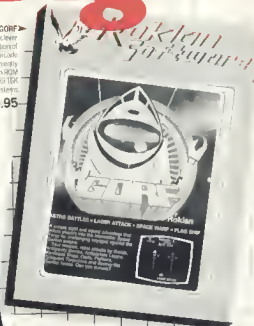


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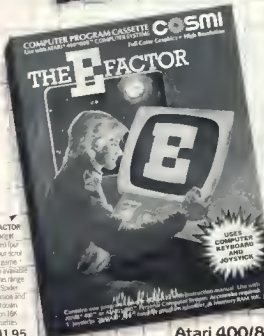
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# CHESS



The fourth World Computer Chess championship is due to be held at the annual meeting of the ACM (Association for Computing Machinery) in New York from October 22nd-25th this year.

It is difficult at this stage to see the reigning world champion, BELLE, failing to retain the championship it won three years ago at the last championship at Linz in Austria.

## WARNING FOR BELLE

A good indicator for the world championship is the annual series of North American computer chess championships also sponsored by the ACM.

The "Chess" series of programs by David Slate and Larry Atkin dominated the early years of this tournament with 7 wins in the first 8 years (1970-1977). From 1978 onwards, however, BELLE has been the dominant program, with wins in 1979, 1980, 1981 and 1982, and second place in 1979 (behind Chess 4.9).

The only program apart from BELLE and the various versions of "Chess" ever to win the North American championship was Rubik, back in 1974. The "Chess" series no longer appears to take part in tournament play, leaving BELLE in an apparently supreme position.

Nevertheless, the manner of its victory in the 1982 championship in Dallas sounds a slight warning note for BELLE.

## DRAW DANGER

In the four-round tournament, the program won two games and drew two to finish in a four-way tie for first place with 3 out of 4.

BELLE gained first place on tie-breaking, a deserved result since it had played each of the three others concerned, drawing with Gray Blitz and beating Nuchess and Chaos.

The greatest danger to the strongest program in a short tournament is too many drawn games. In a four-round event, it may be impossible to recover from even one draw — such a small number of rounds would not be seriously considered for a human event at any remotely comparable level.

BELLE's victory over Nuchess in

BELLE's opening book of 350,000 positions and ability to evaluate up to 150,000 positions per second are both huge advantages over all its forasaeable rivals. On the other hand, Kaissa the winner in 1974 and Chess 4.6, winner in 1977, also seemed favourites to retain the championship three years later, but failed to do so. Will the title change hands again?

round 3 at Dallas was a remarkable one

It is interesting to note that Nuchess provides a link with the past glories of the "Chess" series, since one of its co-designers is David Slate, co-designer of the original version of "Chess", over a decade before.

Here is the game between BELLE and Nuchess.

## STRANGE PLAY

White BELLE v Black Nuchess

1. P-K4, P-K4; 2. P-QB3, N-KB3; 3. P-Q4, NxP; 4. PxP, B-B4; 5. Q-N4, NxBP; 6. QxNP.

Extremely strange play and a most unusual position after 6 moves — already the game seems to be won for white!



If now 6. ... NxR; 7. QxRch, K-K2; 8. B-N5ch wins so black continues 6. R-KB1; 7. B-KN5, QxR; 8. QxQ, NxR.

Now Black must try to extricate his knight.

9. N-B3, N-B3; 10. B-Q3, P-KR3; 11. QxP, R-KN1; 12. P-KN3, N-B7; 13. Q-R7, NxRch; 14. QxN, R-R1; 15. QN-Q3, R-R4; 16. Q-O-O, NxP; 17. R-K1, P-Q3; and Black resigned.



After 18. NxN, PxN or 18... RxN 19. RxRch, PxR, White wins another piece by Q-N5ch.

## GOODBYE TO ALL THIS . .

This is my final article in a series which began 21 months ago, in the first issue of *Computer and Video Games*, when I described Von Kempelen's Turk, an automatic chess player built over 200 years ago.

In the series, I have tried to combine articles about tournament play with ones on detailed analysis of end games such as King and Rook against King and Knight or on topics such as retrograde analysis or finding forced checkmates.

Computer chess is unusual in attracting two different kinds of followers, the tournament competitor and the academic researcher.

It is notable that even BELLE incorporates very few ideas which were not in use 15

or more years ago. Its success is very largely due to its large speed advantage over its rivals. The Artificial Intelligence researcher would argue that its lack of any deep understanding of the positional themes of the game will prevent it ever advancing much beyond its current level.

Others would claim that a further increase in speed of analysis is all that is required to improve performance and that this will apply indefinitely, as long as hardware speeds increase.

Thus, a World Champion program is attainable as soon as fast enough hardware becomes available without any additional "intelligence". Which side is right? Only time will tell.

BY MAX BRAMER

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You can learn to play Go in minutes because the rules are very simple. But it can take many years to learn how to play the game well. The number and the novelty of the tactics that arise is quite startling.

One of the first discoveries that everyone makes is a zig-zag capturing sequence resembling a staircase, but nevertheless referred to in this part of the world as a ladder. The Japanese use the word *shicho*, (with the accent on the second syllable). Thus the saying "No know *shicho*, no play Go!"

Figure 1 shows why understanding ladders is so vital. White plays the cut at 1, separating the black stones marked. Black has two ways of putting the cutting white stone into *atari* (under immediate threat of capture).

If black plays at white 3, white would naturally play at black 2 obtaining three liberties for his group and thus escaping immediate danger.

So black plays as shown and white extends but now his group has only two liberties. Black can thus put white into *atari* again.

By choosing the correct sequence to create the zig-zag course, black drives white clear across the board. At the edge white finally runs out of liberties and thus inevitably loses his now quite large group.

Of course as soon as white discovers that he is in a ladder, he should cut his losses. Having carried on to the bitter end, the only sensible move left for white is resignation.

However, the game situation is rarely this simple. Not all ladders succeed. Figure 2 shows a similar situation but with the presence of a "ladder breaker".

The stone marked was in place before the ladder sequence. Thus after white 17, white's group has three liberties and black has no good move. Indeed the situation is now disastrous for black! He has numerous cutting points (marked with crosses) and can expect many

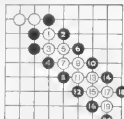


Figure 1 A successful ladder

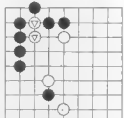


Figure 3 Can white be laddered?

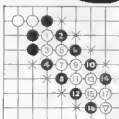


Figure 2 A ladder breaker

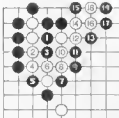


Figure 4 Ladders can end

of his stones to be captured and his entire position to crumble.

Black should have checked for white stones *anywhere* along the path of the ladder including where the black stones are played.

A common tactic is to play a stone that not only threatens to rescue one or more stones in a ladder, but also threatens some other dire consequence at the same time.

The idea is that the opponent can only answer one of the threats. For example, where the paths of two ladders intersect it is possible to play one stone breaking two ladders, thus ensuring the rescue of at least some stones.

In advanced play, on a full-sized board (19x19 grid), whole sequences of moves will be selected in anticipation of the effects of ladders.

It is very difficult to imagine that any computer program could play Go even moderately well without taking ladders into account. Indeed, the simple Go playing program described in previous articles can be severely thrashed by a human exponent of ladder tactics. Happily, however, it is relatively easy to extend such a program.

The most important amendment is to ensure that the correct *atari* is chosen. The program must try both

ways of putting a group into *atari* and choose the way which, if the attacked group extends, minimizes its number of liberties.

If this gives rise to exactly two liberties the program must look further ahead, resuming the sequence of moves until the group "escapes" or dies.

If the group eventually escapes and if the original stone making the *atari* has only two liberties itself, the *atari* must be rejected otherwise the program can go ahead. Where both options produce two liberties the lookahead must branch. If one branch ends in death for the ladder stones the *atari* is OK.

The method is fairly quick because only when an *atari* is selected for further consideration does the lookahead occur. Also the lookahead will examine very few moves, since the sequence in a ladder is usually forced.

The method has good results in complicated situations where the human player tends to "boogie".

For instance, look at figure 3. Can black capture the marked stones? The computer program says yes — the sequence is shown in figure 4 where we discover that ladders can bend!

**BY ALLAN SCARFF**

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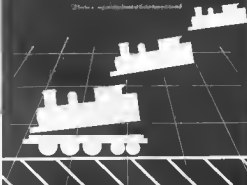
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video games computer system. It's only on this system that the most powerful cartridges can be played.

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|                          |
|--------------------------|
| Atari® 2600 VCS™         |
| Max. cartridge power 4K  |
| Mattel Intellivision™    |
| Max. cartridge power 4K  |
| CBS ColecoVision         |
| Min. cartridge power 16K |

But if you find all this jargon a lot to handle, play around with our system at your local dealer, and you'll get the full picture

exciting the games are to play; and the bigger the K size of the microchip the better the graphic definition, colour and sound.

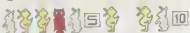
First there was the tennis

video game, then just as you'd got that well and truly under control, along came all those

Invaders from Space. Well, now there's CBS ColecoVision

It's as different from the rest as Star

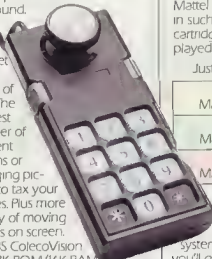
Wars to Dr Who. Technologically, CBS ColecoVision is the most advanced, sophisticated video games computer system available.



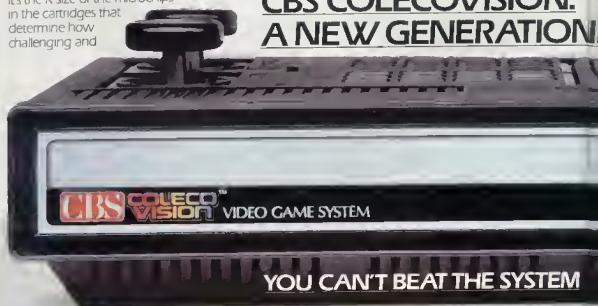
It's the K size of the microchips in the cartridges that determine how challenging and

You get faster speed of play. The greatest number of different screens or changing pictures to tax your abilities. Plus more variety of moving targets on screen.

CBS ColecoVision is a 32K ROM/16K RAM



## CBS COLECOVISION. A NEW GENERATION



### A bigger challenge.

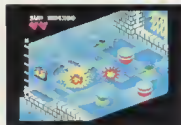
As you might expect, our range of games is just as advanced as our console.

They're not only chosen from the most successful arcade games in the States, they play just like them as well. No-one else can claim that.

Every single game has up to 4 skill levels for 1 to 2 players plus multiple screens.

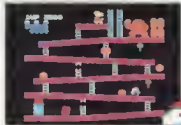
So even know-all game wizards are in for some hairy experiences. There are Donkey Kong, Zaxxon, Smurf, Cosmic Avenger,

complement the games. They give you full control over your game play with 8 direction joy stick, push button keyboard and two independent fire/action buttons.



Left: Zaxxon

**And more.** The unique CBS ColecoVision Expansion Module Interface allows you to expand the use of your console and keep it right up to date with the latest developments.



Right: Venture

Expansion Module No. 1 allows you to play the entire library of Atari VCS™ cartridges.



Expansion Module No. 2 is a fully functional driving unit which includes steering wheel,



Thrust (left) and Cable Pogo (right)

dashboard and accelerator pedal.

It comes with the Turbo™ video game cartridge for exciting high speed racing.

And Expansion Module No. 3 (soon to be launched) will turn your CBS ColecoVision console into an advanced home computer, so you can tackle anything from maths homework upwards.

Whichever way you look at it, CBS ColecoVision is simply the most advanced video games computer system you can lay your hands on.

On this planet, certainly. So go and try one out at your nearest video games dealer.



Module No. 1: Joy

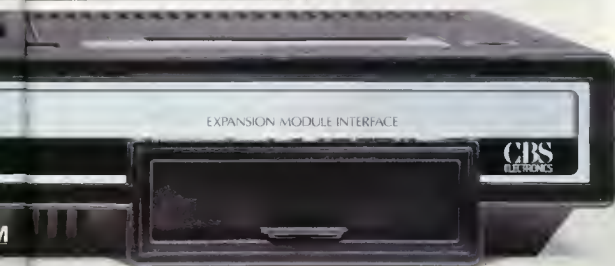
Carnival, Venture, Gorf, Wizard of War, Mousetrap and Ladybug.

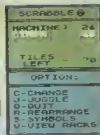
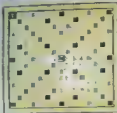
All demonly difficult. Definitely not for those with dodgy digits or weedy reactions.

### More control at hand.

The CBS ColecoVision hand controls are also specially designed to

## NIN VIDEO GAME COMPUTER SYSTEMS.



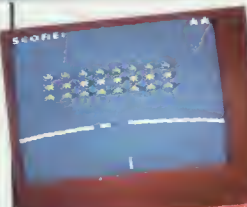


Palen's new Scrabble program (left) can test human opponents. (Page 107)

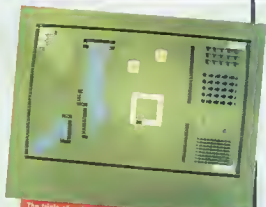
Micropower's version of Donkey Kong (right) for the BBC micro is a real killer! (Page 108)



MOVE CURSOR ->+<- THEN PRESS A TO PRESS OR D DOWN TO PLACE WORD (PRESS SYMBOL-SHIFT FOR OPTIONS)



Wolf, lion and snake tournaments have moved to the screen of your VIC-20. Our verdict can be found on page 105.

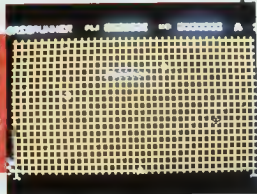


The trials of a sheepdog feature on Virgin's new tape. Our review on page 106.



Down the mine with Bounty Ben. Colleen's challenge to the active age. See page 108.

Idrewinner clean up a mine from the movie Tron and upgrade it into a challenging new game. Page 107







## supermarket...

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## WILL YOU FLOCK TO BUY THIS VIRGIN GAME?

### SHEEPWALK

Sheepwalk is one of the much publicised new titles from Virgin Games — a spin-off from the Virgin record and publishing company.

If this is the standard of their games then I would respectfully suggest that Mr Branson stuck to records. At £7.95 it has got to be the tip-off of the year and a dead cert for our Great Software Dealers page.

The idea of the game is to round up all the sheep which have strayed from their pen. You play the part of the sheep-dog — although you could be forgiven for not realising this as the sound is nothing more than a tiny black speck on the screen. The animal must also have a gammy leg as it moves with the speed of a farmyard ox rather than a scampering dog!

Points are awarded according to the speed at which the sheep have been rounded up and the amount of crops saved from the rampaging flock in the vegetable patch.

The idea for the game is a good one though not entirely original. It falls down on its execution. Written in Basic it's just far too slow. I can't think of any other professional software house who would bring out a game of this type and at this price without first improving its graphics and then speeding it up with machine code.

Perhaps this is the point. Do Virgin



see themselves as a software house at all, or is this just another example of the gold-rush mentality which is killing the computer games business with poor quality products.

The idea behind this approach to the business seems to be grab any program you can, and publish as quickly as possible to make a quick killing. Never mind the quality, just look at the full colour cassette inlay.

You have probably gathered by now that I'm not going to rush out and hand over almost £8 for Sheepwalk. Despite this there is something good about the game which I think is worthy of mention.

The author of the game is fully credited on the cassette inlay. We are given a picture of Gregory Frazee as well as a short biography. Software, like records and books, has to be thought of, programmed, and put forward for publishing by the author. The programmers therefore deserve our recognition for their efforts.

- |                  |   |
|------------------|---|
| ● Gating started | 7 |
| ● Graphics       | 3 |
| ● Playability    | 3 |
| ● Value          | 0 |

## JOYSTICKS SPOIL THE FUN TOMBSTONE CITY

Tombstone City is one of those games from the official list of cartridges manufactured by Texas Instruments which are given an amount of shelf space disproportionate to the quality of the game.

In fairness to Texas it is an old game and some of the newer ones are of a much higher standard.

It's the buyers in the multiple electrical shops who really deserve the criticism for inducing people to buy these crummy old games. It is time they gave more thought to their software buying — particularly for the TI where there isn't a great deal to choose from.

The idea of the game is to blast all the Morgs that are dotted around the screen. Each time you hit one it turns into a giant desert cactus.

Using the buildings at the centre of the screen for shelter the best strategy is to dart in and out before the Morgs can get you. But don't block your escape routes from the township by

blasting the Morgs as they move across the roads out of town. You could end up trapped!

As with many TI games the useless joysticks are one of the main factors which spoil the fun.

It is a game which requires quick hand-eye co-ordination and therefore extremely frustrating when your gun will not move as instructed.

When you have cleared one screen a new day in Tombstone City begins.

If you do venture beyond the walls of the town to take on the Morgs in the desert you may need to use the panic button-space bar which repositions you at random somewhere else on the screen.

Not the best cartridge available for the TI and for my money Parsec and Chisom Trail are much better games. Tombstone City is in the shops at around £25.

- |                  |   |
|------------------|---|
| ● Gating started | 6 |
| ● Graphics       | 5 |
| ● Value          | 3 |
| ● Playability    | 4 |

# E·V·I·E·W·S



## PSION WIN THE WAR OF WORDS

### SCRABBLE

Psion's Scrabble program has jumped straight to a standard which chess machines haven't achieved in 20 years — it can test top human opponents.

Charles Davies of Psion is worried about the 11,000 word vocabulary. "We could have had 20,000 but we went for a fast response time." He needn't be, the game seems to have words plenty for its own moves and is certainly not guilty of over-challenging the human player's efforts.

The presentation bears witness to the thought that went into it and the 16 page booklet which goes with the game is backed by on-screen prompts and reminders.

On black and white TVs the coloured squares are changed into symbols so triple-word scores can still be spotted even if they remain elusive targets.

In play the computer makes good use of the double and triple squares and is programmed to hold onto an "S" which doesn't give it a significant increase in the score.

It also plays quickly and responds well within the two minute time limit demanded by Scrabble tournaments.

It is hard to criticise this game except on price. Nicely packaged as it is, the £26.95 price tag means that it is only going to find its way into the dedicated Scrabble's library. A pity because a lot of non-Scrabble's would enjoy it, if given the chance. For the playability mark we tested it out on two top Scrabble's.

- Graphics 9
- Gaming started 8
- Value 7

### EXPERT VIEW

With 11,000 recognised words crammed into 48K, Spectrum Scrabble is a marvel of modern programming techniques but how close can it run the serious Lexicographer.

Scrabble is a competitive game for over 700 members of Scrabble leagues and clubs and the national finals are keenly fought by wordsmiths capable of

scoring 6-700 points in each game.

We asked two regular entrants into the national finals, Heather Twiddle and Jose Cope of Ware Scrabble Club to test out the Spectrum as an opponent and stood by to take notes.

They were very impressed with the clarity of the board and the presentation of the screen, liked being able to see the Spectrum think through its moves and were pleased it totted up your score before asking you to commit a word. It also keeps score of the game and (important for the serious Scrabbler) keeps a note of how many tablets are left in play.

The program received top marks for its combinations of words and its game standard was generally rated as high. After a few practices, they took the machine on at the top level and after a mighty struggle which included three seven letter words, finally beat it by just four points — 397 to 393.

The computer did not have to challenge often it questioned Jos (Scottish sweethearts) but accepted Qua and it earned good marks for its vocabulary.

While it was voted extremely user friendly it was a fierce competitor.

And both would like to own the game to practice against. Which gave us the idea of running a competition to give Scrabble's the chance to win a Spectrum and this program. Read the September issue for your chance to enter our wordy competition for top Scrabble's.

### ● Playability

10

## FRENETIC FUN AMONG THOSE DEADLY DROIDS

### GRIDRUNNER

Commodore 64 owners are in for an enormous number of new games to choose from as many of the leading software houses have decided that this is one of the machines that they are going to concentrate on.

In this review one of the first 64 games to be launched in the UK is taken through its paces.

Gridrunner is an adaptation of the popular arcade game Centipede in which you had to fight it out with the insects in a mushroom field.

In Gridrunner the insects and spiders are replaced with Pods, Droids and Leader Droids.

It is the year 2190 and the mutants are thriving on the energy generated in the Earth's lunar power station.

As the last protector of the Grid you must blast the alien Droids before they can mass in sufficient numbers to launch an attack on Earth.

You will need all the manoeuvrability of the combat ship if you are to avoid the Grid Search Squads who are made up of a conglomeration of Droids. These are

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## N.E.X.T. MONTH

### VIOLENT SPACE

Next month the Quest is on to find the living room champions who are taking computer games to the limits.

We are starting a Hall of Fame high score chart on a range of selected games which we will add to each month.

First up will be Violent Universe from Quest of Cheltenham. The game puts you in a spacecraft in charge of a canister of deadly stellar gas-clouds.

As alien craft float through space the player sends out gas clouds which destroy any alien unlucky enough to enter into them.

The game can be played on a keyboard or a joystick. You have 40 seconds to conquer each level and must score more than 1,000 points to move on to the next level.

Quest have developed a system for checking high scores against a code and instantly validating them. This system has already worked well on Quest's previous game, Black Hole and the current top scorer is Russell Capel with 2530.

Scores on Violent Universe should be sent to Quest on the address shown on the cassette inlay and we will start publishing our Hall of Fame next month. If there are other cassettes you think we should include in a Hall of Fame please let us know by dropping us a line.

Violent Universe costs £5.50.

### DIZZY SPELLS

Two sorcerers locked in spell-binding battle in an enchanted forest provide the action in a thrilling game Stones of Wrath, next month.

As your opponent sends a deadly Swarm spell down upon you, you throw a hasty Shield Spell and reply by conjuring up a Demon to despatch off through the forest to try and defeat the other wizard.

It's a game of atmosphere and cunning strategy as you try to outwit one-another and it features on the front cover of our September issue.

There's Star Trek in 32k; Vic Quest; Turtle Hop, a fascinating new computer game called Turtle Hop which bears no resemblance to Frogger; Caterpillar and Assault, plus a whole lot more in a thrilling summer edition.

We also have a run down on just how Pison managed to teach their Spectrum 11,000 words and the fascinating history of Scrabble-playing computers. This is backed up by a chance for keen Scrabblers to win a

48k Spectrum plus Pison's Scrabble cassette, in a wordy competition.

It's all in the September issue of C&VG. But looking further into the future, we have a real treat for C&VG fans coming up before Christmas.

The Computer & Video Games 1984 Yearbook has 132 pages, including Bugs cartoons, specially commissioned games listings, professional hints to help beginners present their games and much much more. We'll let you into further secrets of our 1984 Yearbook next month.

There's just no room left for Arcade Arena next month — but it will be back in October with four arcade-style games for your favourite micros!

### JUMPING JACK

Imagine's Jumping Jack is the latest addition to the company's range of Spectrum games and should soon be leaping up our best-sellers chart.

And the Liverpool software house has given us 100 Jumping Jack cassettes to give away this month.

The first 100 coupons we receive from readers will earn a copy of Jumping Jack for their 16 or 48k Spectrum.

Just fill in the coupon below and send it to us care of: Jumping Jack, Computer & Video Games, Durrant House, Herbal Hill, London EC1R 5JB

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Next month we have 300 tapes to give away. There is 150 of each of Imagine's (currently secret) new launches. Two games are aimed at Spectrum owners, and the third is for Commodore 64 owners. We are basing this competition around Manchester and the first 300 letters or postcards we receive next month with a Manchester postmark will receive a cassette.

So if you live in or around Manchester, make sure you're at your newsagents bright and early around the 15th of the month and we'll return the cassette of your choice to you if you're among the first 300 to write in.

## MONTHLY N.E.X.T



## TC64-1 SUPER SKRAMBLE!

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This incredibly sophisticated version of the popular arcade game is probably the best game available for the 64. All the features of the classic game, 8 sectors, full hi-res and sprite graphics, it really is flicker free. Self demonstration feature allows you to see all 8 sectors. Really smooth. Needless to say, it's all in machine code.

## TC64-2 SUPER GRIDER

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## Review

Access



**ATARI.** The Atari Video Computer System known as the Atari VCS or the 2600 has sold

**SECONDHAND GAMES:** We currently have several secondhand Atari VCS units in stock which we are selling for only £49 (inc VAT). This price includes 1 x Cartridge, with Combat Cartridge and all the accessories, as well as a 12 month guarantee. We also have stacks of several secondhand cartridges many at half price (all with 12 months guarantee). We will normally buy back secondhand units and cartridges at one third of our standard price.

over 20,000 Atari VCS club members registered on our computer. As a specialist company about new developments and send detailed catalogues to all of our club members, enabling you buy. This is a totally FREE service, is receive your copies complete the coupon below.

card will soon be launched to convert the VCS into a fully programmable home computer. Completing the coupon below. We will then let you know when further information is available.

re-charger plugs into the cartridge socket of your VCS and expands its RAM almost 50-fold. Memory adds vivid high resolution graphics capabilities and significantly lengthens the game. It melts lead games for £19.95 each, plus offer the facility to play a

Combat Cart & Accessories £68.70+VAT = £79.00

[illegible][illegible]

|                |                 |
|----------------|-----------------|
| Gen. I H&E I   | TELETYPE        |
| Grouping       | Control         |
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| Cost Sheet     |                 |

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| <p> <b>MEASUREMENTS</b><br/>           1. <b>Weight</b> (kg)<br/>           2. <b>Height</b> (cm)<br/>           3. <b>Body Mass Index</b> (kg/m<sup>2</sup>)<br/>           4. <b>Waist Circumference</b> (cm)<br/>           5. <b>Waist-Hip Ratio</b><br/>           6. <b>Body Fat Percentage</b> (%)<br/>           7. <b>Heart Rate</b> (b/min)<br/>           8. <b>Resting Blood Pressure</b> (mmHg)<br/>           9. <b>Maximal Oxygen Consumption</b> (L/min)<br/>           10. <b>Maximal Heart Rate</b> (b/min)<br/>           11. <b>Maximal Power Output</b> (W)<br/>           12. <b>Maximal Torque</b> (Nm)<br/>           13. <b>Maximal Angular Velocity</b> (°/s)<br/>           14. <b>Maximal Force</b> (N)<br/>           15. <b>Maximal Power</b> (W)<br/>           16. <b>Maximal Torque</b> (Nm)<br/>           17. <b>Maximal Angular Velocity</b> (°/s)<br/>           18. <b>Maximal Force</b> (N)<br/>           19. <b>Maximal Power</b> (W)<br/>           20. <b>Maximal Torque</b> (Nm)<br/>           21. <b>Maximal Angular Velocity</b> (°/s)<br/>           22. <b>Maximal Force</b> (N)<br/>           23. <b>Maximal Power</b> (W)<br/>           24. <b>Maximal Torque</b> (Nm)<br/>           25. <b>Maximal Angular Velocity</b> (°/s)<br/>           26. <b>Maximal Force</b> (N)<br/>           27. <b>Maximal Power</b> (W)<br/>           28. <b>Maximal Torque</b> (Nm)<br/>           29. <b>Maximal Angular Velocity</b> (°/s)<br/>           30. <b>Maximal Force</b> (N)<br/>           31. <b>Maximal Power</b> (W)<br/>           32. <b>Maximal Torque</b> (Nm)<br/>           33. <b>Maximal Angular Velocity</b> (°/s)<br/>           34. <b>Maximal Force</b> (N)<br/>           35. <b>Maximal Power</b> (W)<br/>           36. <b>Maximal Torque</b> (Nm)<br/>           37. <b>Maximal Angular Velocity</b> (°/s)<br/>           38. <b>Maximal Force</b> (N)<br/>           39. <b>Maximal Power</b> (W)<br/>           40. <b>Maximal Torque</b> (Nm)<br/>           41. <b>Maximal Angular Velocity</b> (°/s)<br/>           42. <b>Maximal Force</b> (N)<br/>           43. <b>Maximal Power</b> (W)<br/>           44. <b>Maximal Torque</b> (Nm)<br/>           45. <b>Maximal Angular Velocity</b> (°/s)<br/>           46. <b>Maximal Force</b> (N)<br/>           47. <b>Maximal Power</b> (W)<br/>           48. <b>Maximal Torque</b> (Nm)<br/>           49. <b>Maximal Angular Velocity</b> (°/s)<br/>           50. <b>Maximal Force</b> (N)<br/>           51. <b>Maximal Power</b> (W)<br/>           52. <b>Maximal Torque</b> (Nm)<br/>           53. <b>Maximal Angular Velocity</b> (°/s)<br/>           54. <b>Maximal Force</b> (N)<br/>           55. <b>Maximal Power</b> (W)<br/>           56. <b>Maximal Torque</b> (Nm)<br/>           57. <b>Maximal Angular Velocity</b> (°/s)<br/>           58. <b>Maximal Force</b> (N)<br/>           59. <b>Maximal Power</b> (W)<br/>           60. <b>Maximal Torque</b> (Nm)<br/>           61. <b>Maximal Angular Velocity</b> (°/s)<br/>           62. <b>Maximal Force</b> (N)<br/>           63. <b>Maximal Power</b> (W)<br/>           64. <b>Maximal Torque</b> (Nm)<br/>           65. <b>Maximal Angular Velocity</b> (°/s)<br/>           66. <b>Maximal Force</b> (N)<br/>           67. <b>Maximal Power</b> (W)<br/>           68. <b>Maximal Torque</b> (Nm)<br/>           69. <b>Maximal Angular Velocity</b> (°/s)<br/>           70. <b>Maximal Force</b> (N)<br/>           71. <b>Maximal Power</b> (W)<br/>           72. <b>Maximal Torque</b> (Nm)<br/>           73. <b>Maximal Angular Velocity</b> (°/s)<br/>           74. <b>Maximal Force</b> (N)<br/>           75. <b>Maximal Power</b> (W)<br/>           76. <b>Maximal Torque</b> (Nm)<br/>           77. <b>Maximal Angular Velocity</b> (°/s)<br/>           78. <b>Maximal Force</b> (N)<br/>           79. <b>Maximal Power</b> (W)<br/>           80. <b>Maximal Torque</b> (Nm)<br/>           81. <b>Maximal Angular Velocity</b> (°/s)<br/>           82. <b>Maximal Force</b> (N)<br/>           83. <b>Maximal Power</b> 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Torque</b> (Nm)<br/>           105. <b>Maximal Angular Velocity</b> (°/s)<br/>           106. <b>Maximal Force</b> (N)<br/>           107. <b>Maximal Power</b> (W)<br/>           108. <b>Maximal Torque</b> (Nm)<br/>           109. <b>Maximal Angular Velocity</b> (°/s)<br/>           110. <b>Maximal Force</b> (N)<br/>           111. <b>Maximal Power</b> (W)<br/>           112. <b>Maximal Torque</b> (Nm)<br/>           113. <b>Maximal Angular Velocity</b> (°/s)<br/>           114. <b>Maximal Force</b> (N)<br/>           115. <b>Maximal Power</b> (W)<br/>           116. <b>Maximal Torque</b> (Nm)<br/>           117. <b>Maximal Angular Velocity</b> (°/s)<br/>           118. <b>Maximal Force</b> (N)<br/>           119. <b>Maximal Power</b> (W)<br/>           120. <b>Maximal Torque</b> (Nm)<br/>           121. <b>Maximal Angular Velocity</b> (°/s)<br/>           122. <b>Maximal Force</b> (N)<br/>           123. <b>Maximal Power</b> (W)<br/>           124. <b>Maximal Torque</b> (Nm)<br/>      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<b>Maximal Force</b> (N)<br/>           187. <b>Maximal Power</b> (W)<br/>           188. <b>Maximal Torque</b> (Nm)<br/>           189. <b>Maximal Angular Velocity</b> (°/s)<br/>           190. <b>Maximal Force</b> (N</p> |
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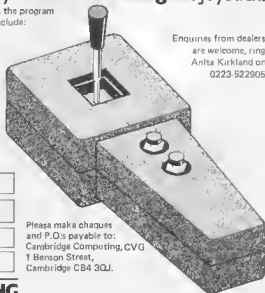
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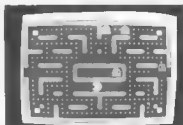
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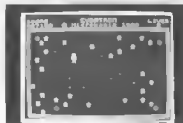
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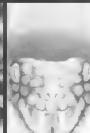
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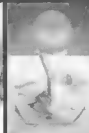
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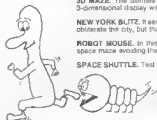
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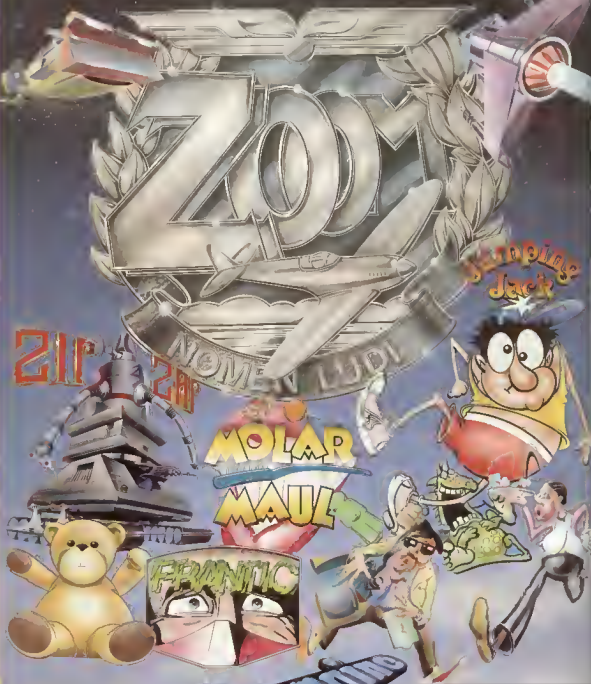
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